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EXTRACTS FROM A CONTRIBUTION ON THE PREVENTION OF TUBERCULOSIS IN ANIMALS, WITH SPECIAL REFERENCE TO PREVENTION IN THE DOMINION.

BY D. MCEACHRAN, F.R.C.V.S., V.S., EDIN., D.V.S.,

Dean of the Faculty of Comparative Medicine and Veterinary Science, McGill University; Chief Inspector and Veterinarian of the Dominion.

As a matter of fact tuberculous meat is frequently foisted on to the public and no bad results seem to follow, at least so far as is known. At the same time there is a certain danger from smearing with tuberculous matter, and from insufficient cooking; consequently it is clearly the duty of sanitarians to limit the sale of meat from tuberculous animals to cases of limited invasion and under very reliable supervision. The same remarks apply to pork in all its forms, but the danger from meat infection in pigs is even greater than in cattle, owing to sausages and hams being more frequently eaten under-cooked.

Tuberculous chickens are still more dangerous owing to the consumption of the giblets in which the tubercle may be concentrated. Fortunately, however, they are usually thoroughly cooked and raised to a temperature which kills the bacilli. Yet reports show that chickens are not infrequently the means of infection in the human family, and while the chicken tubercle bacillus may not be identical with the human, yet the human bacillus will live and thrive in the organism of the chicken, producing tubercle, which, reintroduced into the human body will produce tuberculosis. The expectoration of tuberculous patients in poultry-runs should be absolutely prevented.

Rabbits.—While rabbits contract tuberculosis when exposed to infection, the disease is unknown in them in the feral state, consequently no apprehension may be felt in using rabbits as food.

While every conceivable precaution should be exercised to prevent the communication of animal tuberculosis from the food-yielding domestic animals to man, equal care should be exercised in preventing the communication of this disease from tuberculous people to these animals. Consumptive people are generally regarded as almost as dangerous to the health of cattle, pigs and poultry as are tuberculous cattle, pigs, and poultry to humanity. Here, however, mention must be made of Theobald Smith's recent observation that the bovine bacilli may be as much as thirty times as virulent towards the animals of the laboratory as are human bacilli.

Is it Possible and Practicable to Eradicate Tuberculosis?

I have frequently stated my belief that it is both possible and practicable to rid Canadian herds of this disease completely; and that by the expenditure of an amount of money trifling in itself as compared with the enormous benefits that would accrue to the live stock industries of Canada, which are rapidly growing, and even now represent a large proportion of the country's wealth, while yet it is even at the commencement of its development.

Considering that 45 per cent. of the population of Canada is engaged in rural pursuits; that the railroads depend on agriculture for one-fourth of the freight they carry, and the canals one-third; that the shipping interests depend chiefly upon the produce of the farms and ranches, and that more than one-half of the total exports are agricultural products—the value of which for 1897 amounted, according to the Year Book, to the sum of $55,533,592 (of which $9,937,723 was the amount received for horses, cattle, sheep, swine, other animals and poultry)—surely no reasonable expenditure can be justifiably withheld by the Government to eradicate any disease that interferes with the development of an industry of such importance to the country's prosperity.

We have no statistical information of the number of animals or even of herds affected by this disease, so that it is impossible to estimate accurately what the cost of eradication of tuberculosis might be—but tests have been made during the past year to a considerable extent in every province of

the Dominion, numbering over 10,000 head in suspected herds; of these only five per cent. have been found tuberculous.

From the foregoing remarks it will be seen that the proportion of the affected animals which would have to be slaughtered and sacrificed (those only which showed clinical symptoms) is small; probably throughout the entire Dominion 10,000 such could not be found, which even at full value would not exceed $250,000. Those reacting to tuberculin would, of course, be much more numerous; but of these reacting animals 70 per cent. at least could be fed and slaughtered for beef under supervision; certainly that percentage would be found very slightly affected and their meat would be quite fit for food, and this is what should be done with all cattle of no special value for breeding purposes. The remaining 30 per cent. of carcases should be destroyed by putting them into the rendering vats, indemnity being paid in the manner subsequently recommended.

Just think what a safeguard to public health as well as health of animals it would be to have every animal showing clinical symptoms—those in fact which are most infective—removed, and all known to be diseased prevented from being moved about by quarantine measures.

It may be asked, Would these measures not be attended by considerable disturbance of trade and general inconvenience? No indeed; it would stimulate the cattle trade. Those who are fortunate enough to possess healthy herds would find ready purchasers in those whose cattle had been killed and paid for; slaughter would immediately be followed by disinfection and restocking, in most cases by better bred, and in all cases by healthy cattle.

It is quite evident that if the above suggestions were carried out, tuberculous animals would be in a few years difficult to find in Canada.

Knowing as we do the intercommunicability of human and animal tuberculosis, we can readily understand that any attempts to eradicate the one must be simultaneous with like action in relation to the other—and here I wish to appeal to the medical profession to do their share of this great work of eradication.

No one nowadays doubts the contagious nature of this disease in either man or animals, yet while the veterinary profession and agricultural departments throughout the civilised world have for years been moving strenuously to limit and prevent it in animals, but little has so far been done

in this connection by the medical profession in dealing with human beings. Not only have they acted with unaccountable apathy so far as adopting any radical preventive measures among their patients, but little has been done to inform the people of the true state of affairs, or to point out to them the many ways by which the contagion is spread.

Surely, at least, the public should be told of the danger, especially to young children, of being fondled and kissed by consumptives. Surely parents should be advised how to prevent the extension of this disease among members of a family by isolation. Surely the owners or tenants of houses occupied by consumptives ought to be compelled to thoroughly disinfect, and so renovate the walls and floors as to remove all danger to subsequent occupiers. Surely it is time that special carriages were provided for consumptives for the conveyance to those health resorts to which medical men send their patients, by the railroad companies over whose lines they travel. Time and again have I witnessed on western roads leading to Colorado shocking disregard of all preventive precautions in this connection.

Our experiments with tuberculin conducted at the Experiment Station, Outremont, clearly demonstrated the unreliability of second and subsequent tests. Seven cows when first tested at Ottawa gave a reaction indicatory of the disease; when tested 30 days subsequently only one of them reacted. Three months afterwards double doses were injected into two of them without reaction, and five days later quadruple doses were given the same cows without result.

Tuberculin and other animal toxines should be placed under Government control, as are chemical poisons.

The knowledge of the unreliability of any but the first test led to fraudulent practices by cattle dealers bringing stock into France, and M. Nocard and M. Roux together set to work and discovered a new tuberculin which will cause reaction no matter how recently Koch's fluid has been injected. This, however, for obvious reasons is a Government secret, which M. Nocard informed me he is not at liberty to make public or even divulge to professional friends.

I know that I am within the mark in stating that as compared with five years ago tuberculosis has been reduced in Canada by at least 30 per cent.

Suggested Action and Legislation.

The time has surely come when more energetic if more expensive methods should be employed to terminate this menace to the health of men and animals. The Government acted wisely in moving cautiously in this matter; it took time and much patiently-acquired experience to arrive at a full knowledge of the disease in all its relations in man and animals, before deciding on radical measures or large expenditure.

Hitherto professional men hesitated to recommend, and politicians refused to assume, the responsibility of voting large appropriations for this purpose; and wisely, too.

Now, however, years of investigation and experimentation by scientific men in numerous and independent countries having resulted in a clear elucidation of most of the moot points relating to tuberculosis in animals, and there now being no tenable argument for longer permitting this preventable disease to continue in our midst, when it can be shown, as I have endeavoured to do, that for a comparatively small amount, it can be completely stamped out, surely it is the duty of the Government to take active measures at once for its eradication.

The country should share the farmers' burden, and when cattle have to be killed and sacrificed, I would strongly recommend that full indemnity up to the health value, not exceeding $50 for one animal, be given as compensation, during the first three years. After three years the compensation should be as provided for in the Animals Contagious Diseases Act, viz.:—one third for actually diseased, not to exceed $20; three-fourths when killed for being in contact, in the case of grade animals, not to exceed $50, and in the case of thoroughbred animals two-thirds, not to exceed $150.

As already stated, of the reacting animals at least 70 per cent. could be fed and killed for beef, under supervision.

The 30 per cent. so killed and sacrificed, in consideration of the cost of keeping and feeding, should be compensated for at full value, ascertained by weighing the carcases.

Imported Cattle should be tested.

The alarming prevalence of this disease in Great Britain, France, Germany, and Denmark, whence breeding cattle are imported for the improvement of Canadian herds, should lead our farmers to be very careful in ascertaining

beyond doubt that all importations are free from tuberculosis.

They should not only see that none but the most trustworthy agents are employed to purchase an animal in Britain, but that the agent has personally superintended the tuberculin test, and that he obtains a declaration from the seller that the animal has not been injected with tuberculin for three months previous to the date of purchase.

Our experiences at the cattle quarantines, especially at Halifax and Quebec, demonstrate not only the necessity for these precautions but the unreliability of testing done in Britain. One importation of 14 high class short-horn cattle, which was accompanied by a chart of testing and a certificate of freedom from disease, on being tested in quarantine eight weeks after, showed 13 to be diseased, one being in such an advanced stage that she died from it in quarantine. The remaining 12 were slaughtered and tubercle found in each; in two it was extensively generalised.

It is impossible to estimate the serious damage and losses that probably would have occurred among the short-horn herds of this country if this herd had not been tested in quarantine, but had been allowed to be dispersed—one here, one there—in perhaps a dozen healthy herds; or, more properly speaking, it would be difficult to compute the saving to Canadian live stock interests by the testing at Point Levis of this one herd.

There is no defensible objection to tuberculin testing. Tuberculin as it is prepared contains only the toxin of the bacilli, sterilised by heat, filtered through porcelain. As well might we endeavour to produce barley from alcohol as tuberculosis from tuberculin; in fact, it has been demonstrated beyond dispute that it does no harm whatever.

EXTRACTS FROM THE PROCEEDINGS OF THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION, HELD AT PORTSMOUTH, IN AUGUST, 1899.

PROFESSOR WOODS HUTCHINSON (University of Buffalo) read a paper on—

THE LOCALISATION OF TUBERCULOUS LESIONS OF ANIMALS AND BIRDS,

based partly upon veterinary literature, but chiefly upon a series of 300 necropsies made during the past winter at the London Zoological Gardens. Tuberculosis spared no species or class among birds or mammals, and the

number of deaths from this cause in the series was 80. The differences between the lesions in man and animals were chiefly four. 1. The more general distribution of the lesions. In few of the 80 cases was the disease confined to the lungs, although in all mammals the disease killed by the lungs almost as uniformly as in our own species. In nearly all cases lesions were found in the abdomen as well. 2. The much greater tendency of the disease to attack the serous membranes of the chest. In bovines especially the pleura was almost invariably attacked, dotted by firm, fibrous masses from the size of a pea to that of a walnut, which had given to the disease its popular name among farmers, "the grapes." 3. The rarity of fluid pus, the nodes being usually firm and either fibrous or caseous. 4. The comparative immunity of the bones and joints. Tuberculous osteitis was found only three times in 40 cases in mammals. In birds the distribution was strikingly different. The avian lung was almost as immune as the mammalian was susceptible. In forty cases it was attacked in only six, and four of these contained only a few firm rounded scattered nodes. The disease was usually abdominal, and the severest attack fell upon the liver. The nodes themselves were even firmer and more tumour-like than in mammals, and frequently were full of calcareous matter. The conclusion of most veterinarians and Professor Woods Hutchinson was that the infection usually entered by the alimentary canal, and reached the lungs through the blood or lymph. The susceptibility of the lung was in keeping with its general morbidity, which made it responsible for from 25 per cent. to 40 per cent. of all deaths in our bills of mortality. Animals inoculated in the flank or abdomen died from pulmonary tuberculosis. The curious immunity of the bird's lung was believed to be due to (1) its firmer consistency and greater vascularity; (2) its small relative size—half that of most mammals; and (3) the existence of other organs of respiration, the air sacs, in which fatal mould-growths were of frequent occurrence. The food had little bearing on local distribution, as insect and flesh-eating birds, like similar mammals, were highly immune, and grain-eaters (hens and doves) were extremely susceptible.

Dr. J. WARD COUSINS, President of the Association, in the course of his address, said :—

Relation between the Disorders of Mankind and those of the Lower Animals.

For many years the investigation of the modern school were limited to the disorders of mankind, but this narrowness had disappeared during the latter half of the present century, and the great value of the study of the diseases of plants and animals has been fully recognised. We are greatly indebted to our distinguished member, Sir James Paget, for his brilliant labours in this department, and for his efforts to promote research in comparative pathology. He demonstrated many important problems in cellular pathology, and explained the vital processes common to organisms which possess and do not possess a nervous system and circulation.

Recent investigations in bacteriology have proved a great stimulus to the study of the relations between the diseases of mankind and those of the lower animals, and this relationship will form an important part of future researches. It is only a few years ago that the real nature of that dreadful scourge of the human race, tuberculosis, was discovered, and its intimate association with the same disorder in domestic animals clearly brought to light. Laënnec was the first observer who described tuberculous nodules, and traced their development from miliary tubercles. In 1865 the inoculation of animals with caseous material was found to produce tiny masses

in their bodies which were in all respects similar to the disease in man. Some physicians were bold enough to assert that the phenomena suggested the probability of contagion, but the notion only excited the ridicule of the profession of that period. Tuberculous disease was generally regarded as an hereditary disorder, transmissible in various degrees of intensity. At the same time external influences were looked upon as powerful factors which could kindle the smouldering flame into activity. From the very dawn of modern pathology tuberculous disease received profound investigation, and the researches only corroborated the time-honoured theory. The microscope failed to detect in the diseased parts any specific elements, and in vain cells and granules and cells of giant form were searched for some characteristic quality. Tubercle was examined by the best observers in the civilised world; thousands of clever eyes had gazed at it with intense devotion, and with a remarkable unanimity they pronounced the opinion that it was so indefinite in structure that it could be recognised as much by negative as positive qualities.

In 1882 the whole pathology underwent a great revolution by the demonstration of the life-history of the tubercle bacillus. The disease occurring in any tissue or organ is now universally regarded as a specific disorder, the bacillus the absolute proof of its invasion, and the cause of the morbid changes. The long accepted causes are now dislodged from their position, and are now rightly grouped as morbid tendencies. The inheritance of constitutional peculiarities, the liability to chronic inflammations, and the susceptibility to external influences, are now regarded as conditions which help the microbe to establish itself within the body. Still these factors are not less potent because the specific characters of tuberculosis have been revealed.

This pathological transformation has around it still many unsettled problems. It is, however, a fact of history that Kock, by his own researches, brought to light from the microscopic elements of tubercle a living atom which no human eye had seen before. I believe one may anticipate that this great discovery will be of priceless benefit to mankind.

Bacteriological investigation has already unfolded many of the problems connected with diphtheria. The researches began in Germany in 1882. The chief experimenters were Drs. Behring and Kitasato, and they were soon followed by Dr. Roux, of the Pasteur Institute in Paris. We must know that many animals are liable to its attacks. It is communicable to the horse, rabbit, guinea-pig, and fowl, and some species seem to suffer from a chronic form of the disease. Horses when attacked develop similar symptoms to those which follow inoculation of diphtherial toxin.

The deadly bubonic plague, which was epidemic throughout Europe during the Middle Ages, has unfortunately proved a dreadful scourge in India and the East during the last three years. Many earnest workers have made the disease the subject of an elaborate inquiry. In 1894 a specific bacillus was discovered in the blood of a patient suffering from epidemic plague. There is much reason to believe that domestic animals and rats are responsible for spreading the infection, and squirrels and cats have been known to die of the disease. It has recently been stated by a French observer that fleas are dangerous disseminators of the disease. As a result of a series of experiments he affirms that fleas taken from rats suffering from plague can communicate the disease to healty rats, which in their turn become centres of infection.

Professor Ogston, in 1881, detected micro-organs in acute abscesses, and this important discovery has been followed by many elaborate inquiries which have proved the direct connection between suppuration and pathogenic organisms. It is certain that the staphylococcus, the streptococcus, and the

bacillus coli communis, and other species also, may be the exciting cause of septic conditions in man and the lower animals. Around septicæmia to-day there are many unsolved problems. Are the micro-organisms the direct cause of the disease, or is it produced by the chemical substances which they elaborate ? All animals appear ts be liable to blood poisoning. Dr. Hewlett says that poultry, pigeons, pheasants, and sparrows are susceptible of a disease which Pasteur proved to be excited by a bacillus identical with the bacillus of rabbit septicæmia. Even the mouse has its specific septic disturbance, and the organisms which are present in its blood appear to be identical with those discovered in the septic disorders of swine.

Sir RICHARD DOUGLAS POWELL, M.D., in the address on medicine, said, as regards

The Prevention and Treatment of Tuberculosis :

Amongst the questions that have in the present year ripened considerably, and have been urged forward strenuously towards a final settlement, that of the prevention and treatment of tuberculosis has taken a very prominent place, and it is impossible not to allude to it here, although it will be a subject of a special discussion in the Section of Medicine. Truly a disease which still claims one-ninth of our mortality may well command our deepest interest. That much has been done to diminish our national liability to consumption by improved sanitation on general grounds by Parkes, Simon, Bowditch, Buchanan, Milroy, MacCormac, Smith, Greenhow, is evident by the gradual reduction of the mortality in the last half century from 38 to 14 per 10,000 living, or in proportion to the population for England and Wales by one half since 1851 (Tatham). Even in comparing the quinquennium 1875-79 with that of 20 years before, Longstaff found that the mortality from phthisis at the ages between 5 and 35 had decreased by 15 to 28 per cent., and he could say in 1884 that "the decline of the deaths in recent years is chiefly to be attributed to a diminished number of deaths assigned to fever and phthisis."

All this has been effected without direct reference to the special bacillus element in the disease, chiefly by amending those conditions to which I have alluded as being intermediate between the bacillus attack, of which most of these pioneers in tubercle sanitation knew nothing, and the illness of the patient.

It may, however, be urged with some justice that we in this country have been behind our Continental friends in grasping the full significance from a prophylactic point of view of the discovery of a definite infective bacillus element in the disease which was made 17 years ago, and anticipated 17 years previously.

For our sins in this respect, and perhaps in part because there are political and commercial as well as human interests concerned in the further measures necessary, the question of the prevention of consumption, which should have been calmly and forcefully considered as heretofore by experts in human and veterinary medicine, has become the subject of popular agitation with all the reckless exaggeration and no little threatening of the social tyranny which such agitations tend to produce. The whole subject seems to me, however, to have been well and fully discussed by delegates from all parts of the world at the Berlin Congress, and I believe that the careful, temperate, and broad-minded summary of the proceedings added by Dr. Pye-Smith to the report of the British delegates will do much to bring the matter again within the sphere of sober practical work on the part of private medical men and the proper State departments.

That it is *au fond* a right grouping to place all the previously ascertained causes of consumption amongst the predispositions, and to regard the disease itself as produced by definite infection or contagion through the inhalation of sputum dust, or by the ingestion of tuberculous foods, has been accepted at least for the last ten years; but we must not discontinue to attach a due importance to the other etiological factors because one of them may seem *primâ facie* to be sufficient. To set heredity at nought, to regard climatic considerations as of no importance, and to state that the disease is always acquired by direct contagion or infection is, in my opinion, to ignore much that is true, and to magnify that which should be carefully guarded from exaggeration.

Thirty years ago Sir W. Jenner, in an address to the Epidemiological Society, declared the transmission of tuberculosis from parent to child to be one of the best-established facts in medicine. Jenner did not mean by this the actual transmission of tubercle, nor has anyone that I know of, in modern times at least, made any such contention; but that the susceptibility to become tuberculous runs in families, and this I must confess remains with me an unshaken belief. Take, for example, on the one hand, the striking account by Dr. Reginald Thompson of 80 families of consumptive parentage yielding 385 children, of whom 194 became phthisical and 37 died in infancy, leaving 154 exempt. Consider this in account with the unproven direct communicability of the disease, to which I shall presently allude, as shown by the distribution of mortality amongst married people compared with their numerical liability as members of the general public, and the case for heredity as a predisposing cause of consumption is a strong one if not still "one of the best-established facts in medicine." We cannot, of course, prevent consumptive people from marrying; there are exceptional conditions under which they may rightly do so, but the advice of the family physician should be steadfast in discouraging such alliances, which are unfortunately often prolific. Life assurance offices, whose calculations are based upon experience, will probably wait for much further evidence against the heredity of phthisis before they will feel justified in accepting without surcharge the lives of those who present a consumptive family history.

We are all familiar with circumstances connected with the incidence of certain cases of tuberculosis which render it probable that they have been acquired by indirect contagion through the contaminated dust of dirty rooms, and know that under certain conditions of stagnant, dark surroundings, a patient with advanced phthisis of unclean habits would cause local danger of tuberculous infection to his attendants and friends and to future occupants of the room. But except under such and similar almost experimental conditions the evidence of the contagiousness of phthisis is extremely slender.

It for instance has not been proved that tuberculosis is more prevalent amongst married than single people, and Dr. Longstaff has shown that normal coincidence would account for more than the deaths reported. Pulmonary consumption is comparatively rare before puberty, infantile mortality being almost exclusively from bowel consumption through milk infection. Tuberculosis is nearly twice as frequent amongst male as amongst female infants. The mortality from tuberculosis has diminished more greatly by from one-third to one-fourth amongst females than males above the age of 20 in the last 30 years (Hugh Beevor), when one would think that industrial, nursing, and indoor conditions generally would have told against the female in this respect. The records of the officials and servants of one of our largest consumption hospitals taken out for 50 years, including a period precedent to the use of any special preventive measures

beyond those of ordinary sanitation show a death-rate not in excess of that of the ordinary population.

Whilst, therefore, on the one hand advising every ordinary measure of cleanliness, avoidance of dust, and proper disposal and disinfection of sputum, we may, and indeed must, avoid all exaggerated statements calculated to alarm the public as to the contagion of phthisis. In respect of sanitary precaution, I would instance the simple and efficient directions of the medical officer of health for Brighton as being in most reassuring and refreshing contrast to the theoretical and alarming precautions printed for some other health resorts and published on no official authority. These directions are, I understand, privately sent through the medical practitioner to the person affected.

It is again difficult to recognise the striking testimony of such reliable observers as Middleton, Bowditch, and Buchanan as to the influence of a wet subsoil on the prevalence of consumption with the present view of the acquirement of the disease only by human and bovine infection. We must recall, too, to mind the enormous prevalence of bovine tuberculosis, not be it observed only among stall-fed, crowded, and insanitary cattle communities, but amongst animals under good open-air conditions. Do we not find in this prevalence of tubercle amongst pasture-fed cattle, and in the fact of the prevalence of the disease in localities with wet subsoils and deficient sunlight, some probability that the tuberculous organisms, like those of actinomycosis, tetanus and anthrax may have an independent and preparastic existence, and that, like malaria tuberculosis, will probably be found to have a double origin from purely microphytic as well as from parasitic infection.

It is remarkable that two at least of the most deadly of disease microbes, tetanus and anthrax, should be normal inhabitants of the soil, and yet how comparatively scarce these diseases are, and, as regards one at lest, how communicable. It would seem that, as is the case also probably with malaria, whilst the ultimate source of the disease is vegetation in the soil, yet a greater virulence and activity is attained, and for a short time maintained by cultivation in the human body, or in that of certain other warm-blooded animals. With regard to tuberculosis I would make this final remark: that whilst we may hope, on the one hand, by further careful sanitation, by destroying and diminishing the careless distribution of bacillary dust, and by withdrawing from human consumption tuberculous foods, still to effect a considerable inroad upon the remaining 14 per 10,000 mortality from consumption, we cannot afford, on the other hand, to withdraw or relax precautions dictated by observation, sound in themselves, although in some regards capable of amended explanation, or we may have to make some deductions from the two-thirds diminution in mortality already achieved. In my belief, there is a mephitic laboratory beyond our special control, yielding organisms ever ready to attack the unwary and those whose vitality is depressed. General sanitation and cleanliness is our first line of defence against them all. Wherever the conditions of insanitation, dampness, deficient sunlight, and the prevalence of favouring diseases are present, there aggressive activity may be again looked for.

*** We have been obliged to hold over matter of considerable interest owing to lack of space.

B.
A.

SOME QUEENSLAND CASES.

BY J. WASHINGTON IRVING, M.R.C.V.S., BRISBANE, QUEENSLAND, AUSTRALIA.

THE specimens illustrated opposite are not without interest, because they give one an idea of some of the accidents produced by wire fences, combined with the method of pasturing horses which obtains in this country. It must be remembered that unbroken horses are turned out on a stock or feeding farm and allowed to take their chances. Some day or other a manager or other official makes a round of the farm, and seeing a horse lame or otherwise indisposed, remarks that "that poor beggar seems in a bad way," and then passes

on without another thought about the matter. This incident will be repeated four or five times during about six months. Then when it has become abundantly evident that nature cannot effect a cure, some one will come out and shoot the lame animal. The value of the animals in an unbroken condition being only 20s. or 60s., it is hardly to be expected that much trouble will be taken with them.

When we add that the fences on these farms are made of posts and wire an idea will be gained of the sort of advanced pathological conditions which are frequently met with. The

fences are generally about 4 ft. or 4 ft. 6 in. in height, and contain five wires, the middle one of which is usually barbed.

Specimen A (in the photograph) is the meta-tarsal bone of a three-year-old which had succeeded in getting caught in the fence and had then turned a few somersaults, the wire then breaking off, and a portion remaining in the leg of the animal.

Specimen B is the os suffraginis of a foal. The loop formed by passing the wire round the end post of a fence had become loose and was lying on the ground. The foal, grazing about, got his leg into the loop, and then moving away, tightened the loop, and ultimately broke the wire, the loop remaining round his leg.

In both cases the wire had remained in the leg for some time, with the result as shown in the photographs.

The remaining photograph is that of half the lower jaw of a cow. No history was obtainable, as the specimen was procured from a bone collector who had no idea where it had come from, or what the other portion was like. I, therefore, give it for what it is worth; each reader may weave such a story about it as may best suit his fancy.

Cases.

SEPTIC PNEUMONIA OF CALVES.

BY T. CHAS. HOWATSON, M.R.C.V.S., ST. ASAPH.

THE following notes on a few cases of septic pneumonia of calves are perhaps interesting, so far as showing the infectious character of the disease and the complications which may occur during its course. I believe this disease is fairly common in some parts of the country, and seldom or never occurs in other parts. To my knowledge the disease has not been known to exist in this or any of the surrounding districts until this year.

On April 7th I received a message to visit a farm, about two miles distant, to see some calves. On arrival I am informed that four calves are dead and one ailing—they took ill very suddenly, and died in from 12 to 24 hours after the first symptom of disease had set in. The feeding had been good, and consisted of Indian meal, oatmeal, cotton cake, chopped hay, and long hay. Milk was allowed twice daily.

I now proceeded to examine my patient. Heifer calf, six

months old, in good condition; had been ill about two hours.

Symptoms.—Staring coat; cold extremities; grunts during expiration; respirations very hurried; pulse, 95 per min.; temperature, 103·5°. Percussion of chest wall reveals practically nothing on auscultation; there are harsh sounds at the inferior part of the chest, which gradually get fainter as we get towards the middle third and then disappear. I put the case down as one of simple pneumonia, and administered a fever draught containing sol. ammon. acet. and spts. æth. nit. I then opened the window to allow plenty of fresh air, put a rug over the animal, and left it, giving orders to keep her warm, and left two draughts, each containing sol. ammon. acet. and spts. æth. nit., three drams, to be administered in half a pint of warm water every four hours.

I now turned my attention to the dead calves. I opened the one that had died most recently, and found all the abdominal organs in a perfectly healthy state. The lungs were highly congested at the inferior parts, the congestion gradually disappearing towards the inferior middle third on each side. The trachea contained a small quantity of frothy mucus. I was not, however, satisfied that there was sufficient mischief to cause death in such a short time, so made *post-mortem* examination of another calf (I may here state that all the calves were six months old) and found exactly the same lesions as in the previous *post-mortem*, with the addition of a small quantity of reddish fluid in the chest. The bowels were thoroughly searched for traces of irritants, but without avail. *Post-mortem* examination on the others showed nothing different. My conclusions were that I was dealing with some form of infectious pneumonia, and that the healthy calves must be seen to. These, I found, had never been near the shed where the affected calves had been confined. I ordered them a complete change of diet, and gave each one a full dose of ol. tereb.

April 9th.—My patient seems slightly better; pulse, 90 per min.; temp., 102·5°; grunting still continues, and stiffness of the hind quarters is very marked. On auscultation, the chest sounds are not so harsh; in fact, there is a distinct vesicular murmur in some parts. The same treatment is continued.

April 10th.—I am informed that my patient is dead since the night before. I went to the farm and made a *post-mortem* examination, and found the lungs in the same condition as the previous cases, and being puzzled that such a slight attack of pneumonia should cause death, I forwarded the lungs to Principal Williams for examination.

April 15th.—I am sent for again; two more calves are taken ill and show the same symptoms as the others. Seeing this I express my wish to consult another veterinary surgeon, to which the owner consented, and Mr. Hughes, M.R.C.V.S., of Caerwys, was called in. He, however, could not throw a light on the subject, but suggested the application of mustard to the chest; this was done, and the following administered every four hours :—

Spts. æth. nit.	3 drams.
Sol. ammon. acet.	4 drams.
Aqua ad.	10 ozs.

April 16th.—Calves much the same, breathing slightly better. Another calf been ill about an hour. No mustard being at hand I applied two ozs. ol. tereb. to each side of the chest, and gave the following internally :—

Ol. tereb.	1 oz.
Sol. ammon. acet.	4 drams.

The dose was repeated in the evening, April 17th. All my patients look better; the two taken ill first have taken a little milk; the other looks brighter, but still breathing bad.

April 18th.—All doing well; have taken milk and a little hay. Same treatment continued.

April 19th.—There is marked improvement of calf last taken ill; the other two are also progressing favourably, but are slightly constipated.

Treatment as before.

April 20th.—Constipation more marked and fæces are covered with bloody mucous. I administer 2 ozs. mag. sulph. in a pint of water, and prescribe :—

Quinine sulph.	15 grains.
Tinct. ferri perchlor.	2 drams.
Aqua. ad.	10 ozs.

Calf No. 3 (the one taken ill last) again shows marked improvement, and receives quinine and iron in same doses as the other two.

April 20th.—I receive a letter from Principal Williams stating as follows :—"We have now examined the specimens and find that the disease is the septic pneumonia of calves due to a bacillus similar to that found in the mouse septicæmia. It is infectious and often beyond remedy. The treatment should be antiseptic, such as small doses of carbolic acid or hyposulphite of soda, and separation of the affected animals. See about drainage and ventilation."

April 22nd.—Calves No. 1 and No. 2 are not so well; there is a heavy look about the eyes; the bowels are in good order, and breathing fairly good; pulse 96 and 98 per minute; temperature 103° and 103.5° F. respectively. Sol. ammon. acet. and æth nit. is again prescribed.

April 23rd.—Calf No. 2 dead. No. 1 in much same condition as previous day.

Post-mortem Examination on No. 2.—Bowels are apparently healthy. Kidneys are as black as coal, very friable, and surrounded by a black fluid which stains the hands and is difficult to remove after drying. On section, the cortical part of the kidney is only affected. The liver, as may be expected, is in a state of fatty degeneration.

The Lungs.—Here there are peculiar and interesting changes. Above is seen the normal colour, and from here to the inferior border we have a reddish tint, which deepens as we descend, till finally we have a true congestive colour, thus showing that resolution has begun to take place, and is gradually working down towards the inferior border.

Calf No. 1 is kept under the same treatment as before until April 30th, when death closes the scene. *Post-mortem* examination revealed the same state of affairs as No. 2. The lungs, however, showed much less congestion.

Calf No. 3 has practically recovered.

I am of opinion that Nos. 1 and 2 died, not of the lung trouble, but of nephritis brought about by the irritating effect of the septic products, produced by the bacillus of septic pneumonia in the system—in fact, by an effort of nature to rid the system of the septic product.

It will be seen that out of eight calves, one recovered. The remaining calves on the farm, 24 in number, remained healthy throughout, but received small doses of ol. tereb. every three days.

A CASE.

BY W. OWEN WILLIAMS, F.R.C.V.S.

ON Tuesday, the 11th July, I was asked to examine a red cow, the property of a client.

The following history was given me:—She had been in the byre about three months, and lately was supposed to be in calf, as her right flank was gradually swelling. She was seen at regular intervals by the dairy inspectors of the city, but they did not notice anything special about her.

About a week ago she lost her appetite and commenced to purge. The owner tried her with various foods, but she

would take nothing but a little porridge. She went off her milk, and rapidly lost condition, and also all appearance of being in calf. In the owner's eyes she looked a "piner"; but what puzzled him was that there was no cough at all about her.

On examination I found her to be very lean, to have a pendulous abdomen, to be hide-bound, and to have a considerable pain in the region of the liver; the fæces were firm and not fluid; her temperature was 101·5, and her pulse rapid and weak in character.

I told the owner that she had abdominal disease, probably of a tubercular nature, and that it would be advisable to test her with tuberculin, and, if she did not react, then we might treat her for stomachic affection. To this he consented. In the evening, at 8 p.m., her temperature was 102°. I injected 65 mm. of tuberculin, and the following was the result:—At 5 a.m., nine hours after the injection, the temperature had risen to 106°; at 6 o'clock, to 106·1°; at 7 o'clock, to 107·2°; at 8 o'olock, to 108°; at 9 o'clock, to 108·2°; at 10 o'clock it had fallen to 107·6°.

She was killed late that night, and, on careful *post-mortem* examination next day I found a small calcareous tubercular nodule, almost the size of a pea, in one of the lymphatic glands of the chest, and nothing else!

I say, with the assurance of many years' experience, that this cow during life had, to me, every appearance of being affected with tuberculosis of her abdominal organs, and was a typical "piner." After she had reacted so strongly to the tuberculin test, my opinion was further strengthened. But, on *post-mortem* examination, my opinion of myself as one qualified to give an opinion in such a case was completely shattered.

ENCAPSULED PULMONARY ABSCESS.

BY JAMES MCPHAIL, INSPECTOR OF MARKETS, EDINBURGH.

THE following case is rather curious owing to the remarkable nature of the lesion found on *post-mortem*, and the condition of the animal when alive being so similar to that of a piner suffering from tuberculosis.

The animal, a two-year-old shorthorn bull, was seized by Mr. Riddock, the veterinary inspector on duty at the fat stock sales, as being a subject unfit for human food (under the Public Health (Scotland) Act).

The general appearance of the animal was that of extreme emaciation—elbows turned out, bright eye, dry nose, shallow, quick breathing, accelerated pulse and nasty short cough.

Auscultation revealed pulmonary consolidation; the beast was also lame on the near hind leg, and was altogether as miserable a looking brute as one would want to see.

The history of the animal, as far as could be subsequently gathered, was that it had been sold by the owner for 25s., and that it had been in a pining condition for a twelvemonth, the illness first starting through a chill, and though its inside had been turned into a chemist's shop, no improvement had taken place. The brute had been wintered up, and then turned out to grass in the hopes that some improvement would take place, but it proved to be of no avail, and the animal was sold for the aforesaid sum, its three neighbours fetching £15 each.

On the animal being examined after death, it was found to be in a dropsical condition, fluid being in both abdominal and chest cavities, the heart was hypertrophied, but the condition of the right lung was unique: it consisted almost in its entirety of a large encapsuled abscess, the thickness of the capsule being quite one inch, and very dark in colour. This contained masses of inspissated pus as large as a man's clenched hand. At first one might have thought here was a case of old-standing "pleuro-pneumonia contagiosa," but section through the mass of hardened caseous matter failed to reveal any lung tissue; in fact, the condition of the animal, both alive and dead, was one in which opinions would differ as to the cause of the trouble. It might be suggested that some of the medicine "had gone down the wrong road," setting up a septic broncho-pneumonia, with destruction of the tissue. This, I am inclined to think, was the cause, as the pleura was not the seat of any lesion; or it might have been caused by an acute inflammation of the lung, and the morbid change spread over a large area, followed by necrosis and gangrene. Still, whatever had been the cause, the animal must have had sufficient vitality to throw off the effects of a serious condition of the lungs.

The photo shows in some way the thickened capsule of the abscess, and a portion of the hardened pus. The lung has been preserved in our sanitorium as a curiosity.

Extracts from Foreign Journals.

GLYCERINE IN OBSTETRICAL CASES.

SOME years ago, being suddenly called out to a difficult calving case, I found myself confronted with dystocia caused by the excessive volume of the fœtus, the presentation of which was, however, normal. The liquids had escaped some hours before, and five strong men had repeatedly tried to pull out the fœtus but without result. The fore-legs were protruding from the vulva, the head was as far as the cervix, the forehead already free. I gave orders for further and sustained efforts at pulling the fœtus out, but these also remained unsuccessful. There was no oil or grease to be had in the farmer's house, a lonely one, and I was obliged to have recourse to a bottle of glycerine contained in my travelling medicine-case, and with this I lubricated my hands and arms and smeared the walls of the vagina of the mother and the accessible parts of the calf. Immediately the work grew easier, my engaged arm felt the uterus, hitherto inert, contract gradually, and the efforts of the mother rapidly became apparent. In a few minutes moderate pulling brought to light a calf enormously big in proportion to the size of the mother, whose first offspring it was. The case ended happily for her in spite of the harsh treatment she had undergone before my arrival.

I attributed at first very little importance to the use of the glycerine, which I had employed by mere chance in the absence of the usual oil, but I found that glycerine (pure or with the addition of water) was recommended by the best accoucheurs in cases of dry parturition, and since then I always use it to smear my hands and arms in difficult calving cases; sometimes, also, I lubricate the organs of the mother with it. The advantages of glycerine in difficult births are many and great. The well-known unctuosity of this liquid facilitates more than any other means the penetration of the operator's arm into the vagina and uterus of the domestic animals, and the protruding parts of the fœtus when lubricated with pure glycerine glide more easily along the walls of the maternal organs. The vulva, vagina, and uterus become suppler and more resistant, and regain tone rapidly; the uterine contractions quickly re-appear if they have already ceased—they perceptibly increase if they had begun to flag. Glycerine penetrates these tissues easily and keeps them moist to a certain extent by imparting to them its peculiar

qualities. In addition to this, glycerine possesses antiseptic properties which are not to be despised in cases where the uterine and vaginal mucosities are exposed to various lesions—to contusions, to chafing, and to the other incidents of parturition.

The hands and arms of the operator, exposed to pricks and other wounds, are pretty well protected by this antiseptic covering, which can moreover be easily removed by washing after the operation, without leaving any visible trace or disagreeable odour.

In cases of putrefaction of the calf it is desirable to add to the glycerine some powerful antiseptic, such as phenic acid, lysol, cresyl, salol, salicylic acid and others. This also applies to cases of non-delivery, metritis, etc., in which the operator has to work directly with his hand in septic surroundings. In this way also lymphangitis and the eruptions which are apt to appear on the surgeon's arms in such cases will be avoided. Here again glycerine, simple or phenicated, will be found a good substitute for the oil, grease or vaseline commonly used.

I have several times injected with success 15 to 30 grammes of glycerine in the half open cervix uteri after removing the fibrinous plug that obstructed it; violent efforts supervene shortly afterwards and favour the opening up of the cervix, which can be dilated gradually by the fingers formed in a cone. The injection of glycerine resists pretty actively the rigidity of the spasm of the cervix without lesion; in this case it is advisable to add extract of Peruvian bark or belladonna, according to the indications of the moment. This procedure is certainly more efficacious and much swifter in the case of cows than the administration of ergotine, hyoscyamine, or arseniate of strychnine in drenches, granules or even hypodermic injections; or the two media may be combined. To sum up: a bottle of glycerine, pure or with some favourite antiseptic added, ought to form an indispensable part of the equipment of every accoucheur.—(M. R. BISSANGE in the *Recueil Vétérinaire.*)

HÆMORRHAGIC SEPTICÆMIA IN THE SHEEP. IN a series of papers contributed to the *Revue Vétérinaire*, MM. Besnoit and Cuillè give the results of their personal researches as to a very serious disease among sheep, unknown or misunderstood until within very recent times. They give a concise and complete description of a disease which is

infectious, contagious, epizootic and microbic, and produced by the ovoid bacterium in the sheep.

Hæmorrhagic septicæmia assumes three different forms: first, a malignant form, carrying off its victims in a few hours, frequently before any one suspects disease. The patients are restless, anxious, somnolent, but sometimes, on the contrary, over-excited. Then intense diarrhœa comes on, staggering gait, difficulty in breathing, death; secondly, an acute form—the most frequent—characterised by digestive and respiratory troubles, and generally followed by death within from one to eight days. Recovery is very rare, but still possible, and nearly always incomplete; thirdly, a chronic form, characterised also by respiratory and digestive troubles, of slow evolution, and ending in gradual decline and death in every case, after a longer or shorter interval.

In the rapid forms of the disease the lesions affect almost all the organs, and are purely congestive and hemorrhagic in nature. The inflammatory injuries, always exceptional, are discrete and generally little evident. Hepatic distomosis and pulmonary strongylosis are very frequently found on the dead bodies. Lesions of chronic form are much more discrete. The lungs are almost the only organs presenting serious and constant disorders, grey induration or broncho-pulmonary sclerosis. The liver is, however, the seat of a slight interstitial cirrhosis, accompanied with lesions of a degenerative order.

The pathogenic agent of hæmorrhagic septicæmia in the sheep is an ovoid bacterium, which is found in abundance in all the lesions and sometimes in the blood (acute forms only). It is immobile, rounded at its extremities, and presents in its centre a clear space. It is ærobic, may be cultivated between 37° and 39° (Centigrade) in most of the usual media, becomes rapidly attenuated as it grows old or under the influence of heat. It resists putrefaction and congelation, and, on the other hand, is rapidly destroyed by weak antiseptic solutions. It may be inoculated in the guinea-pig, goat, pig, calf, mouse, and pigeon. The easy inoculation of this bacterium in the pig, goat, and calf demonstrates clearly the absolute identity of the hæmorrhagic septicæmia in the various species, and it follows that they all come from the same source, and therefore their transmission from one species to another in the course of one and the same epizootic is to be feared.

The ovoid bacterium is a saprophyte bacterium that swarms in all soils, in stagnant pools, dung-heaps, and in forage soiled by dust or water. It is ingested constantly by animals,

and becomes pathogenic under the influence of causes insufficiently known. Predisposing influences, such as dampness and helminthiasis (strongylosis, distomosis), are singularly helpful towards its pathogenic action on the victims of its attack.

The treatment of hæmorrhagic septicæmia in the sheep ought principally to be prophylactic, and be based on proper hygiene, isolation, and disinfection, until some sure method of immunisation be found which will put animals beyond reach of the disease.

Since the publication of the above papers, M. Lignières has communicated to the Société Centrale de Médecine Vétérinaire a very important work on Pasteurellosis, and he treats specially ovine Pasteurellosis. It seems that this and the disease above described are the same, but whilst MM. Besnoit and Cuillé attribute the disease to an ovoid bacterium, easily isolated and cultivated, M. Lignières recognises as active agent a microbe of the same form, a cocco-bacillus, differing so much from the agent of MM. Besnoit and Cuillé that we may affirm it is not the same. But the excellent and remarkable papers of MM. Besnoit and Cuillé, which we have summarised above, show that this disease, often misunderstood or confounded with others, is indeed of microbic origin. Their observations are confirmed in the main points by the essay of M. Lignières, and are of great value as helping to elucidate a very obscure pathological question.

THE PART PLAYED BY INGESTIVE CONTAGION IN THE PROPAGATION OF TUBERCULOSIS. THE ALLEGED DANGERS OF TUBERCULOUS MEAT.

THE following are the results of experiments made by Professor Galtier, and the conclusions at which he arrives:—

The transmission of tuberculosis may be brought about by ingestion, but it is neither fatal nor even always easy. It depends upon the quality of the doses of tuberculous matter ingested, and upon their number. When the dose is weak, the most active tuberculous matter accidentally ingested infects only rarely even the most susceptible animals, and a single meal copiously contaminated scarcely infects more than a half of the animals experimented on. The number of cases of infection increases with the number of contaminated meals; the more active and abundant the tuberculous

matter ingested is, and the more frequently the meals are repeated, the more surely will contagion follow.

Tuberculous virus, when weakened by proper heating, becomes less and less dangerous for the animals which ingest it; yet ingestion several times repeated may, in certain cases, produce tuberculosis, when the tuberculous matter, simply weakened by heating, say, to 70° or 80°, is taken in considerable quantity.

Now that it has been ascertained that contagion by ingestion is often uncertain, and that even the repeated ingestion of weak doses of virulent matter does not certainly produce tuberculosis; and now that, on the other hand, we can take for granted that the flesh of tuberculous animals is virulent only in exceptional cases and only to a feeble degree; now that it is recognised that the ingestion of this flesh, even when raw, is without danger for sheep, calves, pigs, rabbits, and guinea-pigs, we may, without causing any danger to the consumer, decide that it is unnecessary to condemn the flesh of tuberculous animals when there is no strongly-marked emaciation and no serious muscular and osseous lesions.

DOES CYSTICERCUS TENNICOLLIS OCCUR IN THE ADULT OX?

In the *Zeitschrift fur Fleisch-und Milchhygiene*, Herr Ströse remarks in relation to this question: According to contemporary literature the *Cysticercus tennicollis*, the larva of the *Tænia marginata*, appears to be no uncommon parasite in the ox. I have met with it only a few times in the calf and in every case only in the liver, but as yet never in the adult ox, whilst it is well known to be so very frequent amongst both swine and sheep. Ostertag, however, remarks that this Cysticercus is a frequent parasite in the ox. Herr Ströse asks public health veterinarians to communicate their observations in this connection. In the same volume Herr Falk makes the following communication: He found in the liver of a calf a parasite which had bored itself passages in the parenchyma of the liver; these passages for the most part ran along near the surface and contained masses of caseous matter. In these passages were small bright-grey hydatids, and one almost at the end of every passage. They had manifest scolical outlines without differentiation of suckers, and were undoubtedly undeveloped examples of *Cysticercus tennicollis*.

FOOT-AND-MOUTH DISEASE IN A CAT.

ON the 31st May I observed at a farmer's, whose whole stock of cattle and pigs were attacked with foot-and-mouth disease, that the cats of the house were also suffering from the disease. One of them was caught; the animal was thin, coat scrubby, and dull; taking of food had quite ceased according to the farmer's wife; general appearance, scared and mournful. The cat salivated like the oxen; in the nostrils a vesicular foam had collected, which flowed slowly down over the hairs of the under-jaw. Beneath the corner teeth of the lower jaw were smooth vesicles about the size of a lentil, white with somewhat reddish areolæ; the tip of the tongue was stripped of epithelium. I sent the cat when dead to the pathological anatomical institute of the veterinary school at Hanover, where, on section, in addition to the defects of the mucous membrane, bright red blotches in the cavity of the throat were found to exist. The principal of institute, Dr. Olt, inoculated the virus into a pig; infection, however, did not take place, probably because the virulence of the contagion was interfered with by filth, etc. This case of a cat being attacked with typical aphthous disease is not without its interest for the veterinary sanitary inspector. It is well known that this animal very frequently forms one of the tenants of a stable; they sleep on the hay, wander about the stalls, and have a fondness for waiting during milking time in the byre among the cows in order to get a drink of milk. Now if the milk of the diseased cow has a bad taste, off wanders the cat to a neighbouring byre and infects, being itself ill of aphthous disease, a wider area. Many cases of the spread of the disease, which are often otherwise inexplicable, and in which formerly the air used to be accused as the agent of contagion, find their explanation in the infection caused by cats as they roam about.—*Deutscke Thierarytliche Wochenschr.*

FILARIOSIS HÆMATICA.

EMBRYOS of *Filaria immitis* were first found in Hungary by Hutyra in 1887; in 1898 Rátz discovered full-grown specimens of *Filaria immitis* in three English greyhounds. In the same year the presence of adult Filariæ and their embryos was established as a fact in the life of the animal on internal examination. In particular there was brought up for examination a grey greyhound, with the information that the animal had been extraordinarily restless for some days,

often yelped aloud, and once even had spasms. On examination there was found aggravated dilation of the heart on the right as far as to the line of the right mammilla, under the skin of the right forearm a thready involved formation (adult *Filaria immitis*), and in the blood the presence of numerous embryos of *Filaria immitis*. The number of the embryos was the same at the examination, which took place that day, as in the evening. The hæmoglobinal content of the blood corresponded to 60° of Fleischl's hæmometer; the blood-corpuscles showed no alterations. The appetite was at the beginning good, sensorium quite free; elevation of temperature was not observed. After a few days marked depression set in, the animal performed compulsory movements, yelped on its head being touched. On the day of its death clonic spasms in the extremities and total unconsciousness set in, breathing assumed the Cheyne-Stokes type. On dissection numerous adult specimens of *Filaria immitis* were found in the subcutaneous connective tissue and between the muscles, in the blood numerous embryos. A dilatation of the right ventricle of the heart was likewise observed. In the heart and in the great vessels no adult specimens were found. The three English greyhounds in which filariosis was discovered by Rátz belonged to the same owner, were born in Hungary, and their parents appear to have died under similar manifestations. The greyhound brought up for internal examination was descended from a breed of dogs in Germany.—*Berliner Thierarztl. Wochenschr.*

TREATMENT OF MALIGNANT CATARRHAL FEVER WITH ARGENTUM COLLOIDALE.

In conjunction with my assistant I successfully treated an ox attacked with malignant catarrhal fever with the intravenous injection of argentum colloidale recommended by Professor Dieckerhoff. A five-year-old Bavarian ox, ill for two days, showed on first examination great weakness, want of consciousness, interior bodily temperature, 41·6° C., wheezing fibrinous exudate masses in the nose, swelling of the eyelids, tears in both eyes, cornea injected. Prognosis very hard to formulate. Patient at once received an injection of one gramme of argent. colloid. After 15 hours, perceptible improvement of the general condition. Temperature, 40·0. Patient received a second, and, the following day, a third injection of one gramme argent. colloid. Improvement proceeded gradu-

ally, brightness and appetite reappeared; after five days the animal seemed, apart from the blindness, quite sound again. After a few weeks power of sight also came back completely. Never before had I observed a single case of cure of malignant catarrhal fever, when treated according to earlier methods.—*Berliner Thierarztl. Wochenschr.*

ENORMOUS STOMACH IN A HORSE.

M. BARMIE found in a horse which he was dissecting a stomach of the following dimensions:—Weight, 23·5 kilos; diameter, from the right cæcum to the pylorus, 58 centimètres; diameter from the small to the great curvature, 36 centimètres. The greatest girth was 1·67 mètres; the smallest 1 mètre. The stomach held 41 litres. M. Butel adds to these facts that he has seen stomachs containing 80 litres, weighing 71 kilos. The great curvature was 2·60 mètres long, the small 90 centimètres. (*Receuil de Med. Vétérinaire.*)

DISTOMA HEPATICUM IN THE LUNG OF THE OX.

THE distomata which, as is well known, have, in the ox, their favourite seat in the liver, also settle in the lung. Herr Oppenheim has observed several such cases, and as early as 1894 described the alterations caused in the respiratory organs by the above-mentioned parasites. These lesions consist in hæmorrhages and bronchitides which are limited to small spots, from the size of a hazel nut to that of a pear, and lead to ectasies. The extended bronchi contain a greenish-yellow mass, in which nearly always distomata are to be found. On the other hand, there may also be observed hollow spaces varying in size from a nut to a fist, with strong, often more or less calcareous, walls. These hollows are filled with a greenish-yellow viscous or congealed mass in which one to two distomata are usually imbedded. The presence of the parasites in the extended bronchi justifies the acceptance of the opinion that the migration of the embryo takes place by way of the respiratory channels. The cercariæ lodging in the fodder remain presumably, on swallowing of the chewed plants, sticking in the throat, and make their way through the larynx to the trachea. Distomata occurring in the lungs may give rise to considerable mani-

festations of disease, especially when the contents of the cavities force their way into a greater bronchus and become wider spread over the lung. An ox attacked with distomata in the lung showed accelerated respiration. Percussion of the right wall of the chest gave rise to a dulled sound in a space about the size of one's palm. Temperature 40°C, very racking cough, small appetite. On the next day the ox coughed up a greenish-yellow substance which is found in lung cavities caused by distomata. The condition of the ox soon afterwards improved.—*Berliner Thierarztl. Wochenschr.*

A NEW TRICHOPHYTON CAUSING HERPES IN THE HORSE.

MATRUCHOT and Dasconville observed an epidemic of herpes in a regiment. Forty horses were infected: several men tending them got the disease in small spots on the skin. Culture and inoculation experiments were made, and by the placing of hairs or flakes of skin in different culture-media, M. and D. succeeded in isolating a trichophyton which grew well on beets and slices of potato. The diseased hair showed itself filled with numerous oval spores (4-6 : 2-4 μ in size), and surrounded by clustering mycelia. In cultures the trichophyton appears as a strong mycelium, with long, mostly rectangular, anastomosed fibres. The spores take their rise in an ampulla which gradually loosens. All at once the mycelium fibres become transformed into chlamydospori, which, as well as the end-spores, are capable of propagation. The fungus appears to belong to the ascomycetes. Transmission to a guinea-pig gave a positive result after a fortnight.—*Berliner Thierarztl. Wochenschr.*

Editorial.

A PROPHET OF EVIL.

PROPHETS—at any rate, honest prophets—have generally a bad time of it. We all know the good fortune of those men who, at the bidding of the crowd or at the command of some despot, prophecy smooth things; they tickle the ears of the shallow, the vain, and the cruel, and make them believe that their vanity and cruelty are really quite justifiable, and even

laudable, and they get much applause and many guineas. But it is quite otherwise with the true prophet. Our cultivated readers will remember the story of Cassandra, the daughter of old King Priam, and how she prayed to the great Phœbus Apollo and asked him to bestow on her the gift of prophecy. The sun-god yielded to her wishes and bestowed on her the coveted boon, but he attached a terrible condition to it, and that was that nobody should believe her prophecies. Which things are an allegory. The same experience comes to the whole of us, though more especially to the thoughtful men and women among us. For it is not difficult to become a prophet, if we will but be honest and courageous. What has been will be; there is nothing new under the sun—that is to say, the great principles of life remain unchanged: only the surface changes, only the phenomena vary; but then they vary infinitely, and give scope for the patient observation of conscientious workers.

I have been a prophet of evil things and have undergone the fate meted out to all such men from the time of Elijah downwards. My fears have been ridiculed as groundless and my warnings have passed unheeded, and now my very simple and very evident prophecies are going to be fulfilled. I am sorry for this. I would much rather give up all claim to prophetic insight than see my profession humbled, as it is certainly going to be. On another page of THE VETERINARY JOURNAL will be found a scheme consequent to the recommendations of the Royal Commission on Tuberculosis, with regulations and a syllabus of subjects, which I commend to the perusal of the veterinary profession. Little comment is needed; the document is in itself too eloquent, but it is important for my professional brethren to note that such recommendations are generally accepted by the Government, and most commonly appear in a Bill to be brought before Parliament, which soon blossoms into an Act and becomes the law of the country.

It is difficult to believe that a printer's error of a very glaring kind has not been committed when one sees the honoured name of Professor Hunting at the head of this precious document!

According to this scheme only an inspector of nuisances can become a meat inspector! One would imagine that this document had emanated from a body of vegetarians, and that flesh-food had been deliberately stigmatised as a nuisance and a despicable nuisance, being, so to speak, tacked on to others more serious and more dangerous.

What will the English farmer say when he learns that his mag-

nificent live-stock, the pride of his heart, after having gained gold medals at innumerable shows and been inspected by the most competent judges in the country, perhaps even admired —and envied—by royalty, is, as dead meat, to be approved or rejected by inspectors of nuisances? What an outrage on our agriculturists! Of course it may not be too late to avert the evil, and there may be another side to the question. The syllabus is pretty elaborate. It includes very much that is now taught to veterinary students. The question that at once arises is, What length of a course is necessary for an inspector of nuisances to acquire a sufficient knowledge of "the signs of health and disease in animals destined for food, when alive and after slaughter," and "the distinctions between the parts and visceral organs in different domestic animals; the size, weight, and form of the organs of the ox, cow, &c.," and "the hygiene of byres . . . . and all places where animals destined for the supply of food are kept?" And again, what amount of scientific training is necessary in order to prepare a candidate for the proper application of tuberculin and other tests—that is, with the hope of getting really trustworthy results?

A course of four years of study is demanded by the R.C.V.S., and rightly demanded. If, however, Mr. Hunting and his colleagues fix a low enough standard of examination we may find the new inspectors becoming fully qualified in a very much shorter time; and then we shall have on the one hand a pack of charlatans let loose on the public to inspect its meat supplies, and on the other hand well-founded complaints on the part of our veterinary students on the absurd and artificial length of their college course.

I am in a strange quandary. I am the victim of a startling duality, and find myself listening now to this voice and now to that, and acknowledging that each side has a strong case, and supports it by vigorous arguments. Let my professional brethren hear these various arguments and help me to a decision. As a veterinary surgeon and as a Fellow of the R.C.V.S. I am most anxious to uphold the dignity of the profession and resist the intrusion of inferior men—men who by their very training can be nothing but the hodmen, the day-labourers of the profession. The new meat inspectors may be the most honest and the most diligent of mortals, but they will almost necessarily approach their task from the purely prosaic and materialistic side, they will be influenced by what the Germans call merely bread-and-butter considerations. And no one will be able to blame them; they

may be, probably will be, most respectable men, though of narrow views; they will probably be most industrious and painstaking, though quite destitute of scientific zeal; but, then, in a court of law their word will be as good as ours. I should rather say will outweigh ours in the event of a dispute, because they will wear the official badge, and a judge will be bound to accept their statement, being official, in preference to ours, which is merely scientific.

On the other hand, there are arguments which appeal to me as a teacher, and I frankly admit the cogency of these arguments, being, as I am, a mere man, and not overburdened with this world's wealth. These new inspectors must be taught, and the question arises—Who is to teach them? It cannot be the present inspectors—so far as they are not qualified veterinary surgeons—because they have not had the proper training, nor, even if they had had that training, could we be sure of their ability to teach. The most learned man is often the worst teacher. It seems to me, then, that only the existing colleges can provide the requisite teaching power. I do not see how we can refuse admission to the new candidates. As a matter of fact, many young men come to our colleges without intending to graduate, and they often make excellent students; even distinguished men—professors in universities—have sat humbly on our benches for a session or two with the object of gaining insight into some particular branch of study. Frequently a wealthy lover of animals is attracted by scientific interest or curiosity, and spends a session with us. Even if we wish to guard our portals against the Philistines. We have no power to make it imperative that all students must undertake to spend four years at a college and take a degree as Members of the R.C.V.S. at the end of their course.

Much will depend, as I have said, upon the decrees of the Sanitary Institute and Mr. Hunting. If they accept a low standard of knowledge which may be acquired by a short and rapid course of study they will be in this dilemma: either they are foisting upon the public an inferior article, or they are publicly asserting that the R.C.V.S. is exacting too much from its candidates. I leave Mr. Hunting on the horns of this dilemma. I had hoped that a school of pathology might have been established in Great Britain by obtaining for the members of my profession an exclusive right to the meat-inspectorships of the country, with their unique opportunities of extending our knowledge of disease in the lower animals—opportunities of which only a man who has undergone a

long and laborious academic training can avail himself—but these hopes are, I fear, going to be disappointed. Is Mr. Hunting going to be our saviour or our Jonah?

The Sanitary Institute.

EXAMINATION COMMITTEE.

Registrar—SIR W. GUYER HUNTER, K.C.M.G., Q.H.S., M.D., LL.D., F.R.C.P.

Chairman—PROF. J. LANE NOTTER, M.A., M.D., D.P.H.

H. E. ARMSTRONG, D.HYG., M.R.C.S., *Medical Officer of Health, Newcastle-upon-Tyne.*

W. HAYDON.

PROF. W. HUNTING, F.R.C.V.S.

Deputy Registrar—E. WHITE WALLIS, F.S.S.

EXAMINATION FOR INSPECTORS OF MEAT AND OTHER FOODS.

THE Report of the Royal Commission on Tuberculosis recommends that in future no person be permitted to act as a meat inspector until he has passed a qualifying examination. The Council of the Sanitary Institute, who have, since the year 1877, been holding qualifying examinations for the office of sanitary inspector, have therefore decided to arrange examinations, the syllabus of which includes the subjects specified in the report of the royal commission.

Under the general sanitary statutes, the duties of a meat inspector can only be discharged by an inspector of nuisances, or sanitary inspector, and proof of holding a certificate for this office will be required by the institute prior to entering for this examination. The council have thought it desirable to include in the syllabus for the examinations the subjects of which a knowledge is necessary for the inspection of other articles of food besides meat, so as to cover the whole field of food inspection.

Regulations.

Candidates for the examination must hold a certificate as sanitary inspector or inspectors of nuisances, from the Sanitary Institute or some other recognised examining body.

Candidates must produce evidence of having had training in meat inspection for two months at a cattle market and slaughtering establishment recognised by the institute, and also of having studied the subjects of examination.

Each examination will occupy a portion of two days. On the first day it will be in writing and consist of two written papers, two hours being allowed for each. On the second day the examination will be practical and *vivâ voce*.

Syllabus of Subjects.

A knowledge of the laws, bye-laws, and regulations affecting the inspection and sale of meat and other articles of food, including their preparation and adulteration.

Signs of health and disease in animals destined for food when alive and after slaughter:—

Tuberculin and other tests.

The names and situations of the organs of the body in animals:—

The distinctions between the parts and visceral organs in different domestic animals; size, weight, and form of the organs of ox, cow, horse, sheep, calf, pig; position of lymphatic glands.

The appearance and character of fresh meat, organs, fat, blood, fish, poultry, milk, fruit, vegetables and other food, and the conditions rendering them, or preparations of them, fit or unfit for human consumption.

The hygiene of byres, lairs, cow sheds, and slaughterhouses, and all places where animals destined for the supply of food are kept.

The hygiene of markets, dairies, and other places where food is stored, prepared, or exposed for sale.

Practical methods of stalling and slaughtering animals, preserving and storing meat and other foods.

Report.

THE authorities of the County Asylum, Whittingham, Lancashire, finding that 84 per cent. of the cows at the asylum farms were affected with tuberculosis, decided, in August, 1897, to employ the tuberculin test.

It was resolved that the tests and inspections should be carried out by Mr. Charles Blackhurst, M.R.C.V.S., Broughton, and from the report, which has just been published, we find that the number of cows tested in the first instance was 270, of which 186 reacted, 85 did not react, and five were doubtful.

One hundred and seventy-five out of the 180 reacting cows were found on *post-mortem* examination to be tubercular.

As some of the 85 which did not react were not killed for 12 months, returns of value could not be made, though 36 were found to be free from any trace of disease on *post-mortem* examination.

Since commencing the tests on the various farms, Mr. Blackhurst has inoculated about 600 more cows and found that 80 per cent. of them reacted to the test, and of this large proportion about 480 in number, all with the exception of five, were found on *post-mortem* examination to be tubercular.

Of the 20 per cent., or about 120 cows, which did not react to the test, many were inoculated again at the expiry of six months, some reacting and others not, but 25 per cent. of

those which did not react were found on *post-mortem* to be tubercular.

It must be borne in mind that all of these cows were bought under the impression that they were healthy at the time of purchase; they were bought from dealers and others at many of the markets in England and in Scotland.

Mr. Blackhurst has come to the conclusion that if the temperature of an inoculated cow should rise even one degree, that cow should be considered as affected.—*Report by Dr. Frank Percival to the authorities of the County Asylum, Whittingham.*

Correspondence.

PROFESSIONAL CONDUCT.

BY JABEZ.

SIR,—I have no wish to enter into a long discussion with Mr. Thompson as to what is and what is not unprofessional conduct. What I would like to say is that, in my former letter, I merely expressed the opinion that it was scarcely fitting for a veterinary surgeon who combined in his own person the functions of veterinary lecturer to amateurs, veterinary editor to an agricultural paper, and author of a popular treatise of animal diseases and their treatment, to be the man to raise an outcry against the professional conduct of others. In spite of what Mr. Thompson has said I maintain that after a man has made his "bit" out of his profession it is not quite decent of him to do his best to hinder those who come after him from getting a living at it, and that the acts to which I have objected have a tendency that way is certain. Quacks owe much to men of Mr. Thompson's stamp, if, indeed, the species is not perpetuated by such individuals.

Perhaps Mr. Thompson can explain what good purpose is served by the publication of the details of the Schmidt treatment with the address of the instrument maker from whom the syringe may be obtained.

Let me tell Mr. Thompson what, in my opinion, is likely to happen. The intelligent amateur adopts the treatment, and is, perhaps, successful in a case of his own; he is not content with this experience, and is soon found doctoring half the milk fever cases in the parish.

That way lies the evolution of quacks.

Only this week I saw a question addressed to a veterinary editor, asking whether it is true that dirty syringes may give mammitis in Schmidt's treatment, and how this may be avoided.

Proceedings of the Veterinary Medical Societies, etc.

BORDER COUNTIES VETERINARY MEDICAL SOCIETY.

THE summer meeting of the Border Counties Veterinary Medical Society was held, by invitation of the President, Mr. James Lindsay, M.R.C.V.S., at the Station Hotel, Dumfries, on Friday, 11th of August. Mr. Lindsay cordially welcomed the members across the borders.

The company included Mr. A. Pottie, Paisley, reader of a paper on "Facts, not Fiction, regarding Bovine Tuberculosis," at the previous meeting; Mr. R. C. Robinson, veterinary inspector for the Carlisle Corporation; Mr. Jacob Howe, Keswick; Mr. John Armstrong, Penrith; Mr. J. W. Hewson, Mr. Mackie, Carlisle; Mr. Jos. Little, Abbey Town; Mr. H. Thompson, Aspatria, hon. secretary and treasurer.

The President called upon the Secretary to read the minutes of the last meeting, which were taken as read on the motion of Mr. ARMSTRONG, seconded by Mr. ROBINSON, and duly signed by the Chairman.

The SECRETARY next read a letter from Mr. McIntosh, Dumfries, regretting that he was unable to be with them. Letters and telegrams of apology for absence were also received from other members and friends, and a telegram, wishing success to the meeting, was received from Mr. Joseph Carlisle, the worthy and venerable ex-president of the society.

The SECRETARY reported that, in accordance with a resolution passed at the last meeting, he was now in possession of the instruments belonging to the society, which he obtained from Messrs. Carlisle and Bell. They were in very good condition and could be had by any of the members on writing to him at Aspatria.

The society's balance in the bank was reported to be £10 13s. 4d. Mr. THOMPSON said this was the best balance they had ever had, and everything was paid up.

Mr. JOHN BELL, Clonmel, wrote acknowledging with gratitude the kind vote of condolence passed to him by the association on the death of his wife. The writer stated that he felt deeply the thoughtfulness of the members, especially after so many years' absence from his native town. There was also a reply from Mr. John J. Bell, of Carlisle, to the letter of condolence passed to him by the society on the death of his wife. He remarked that the sympathy of his many friends, amongst whom he and his family included all the members of the association, had alleviated, to some extent, the grief occasioned by his loss. A letter of condolence had also been forwarded to Mr. Anderson, Hexham, on the death of his wife.

On the motion of Mr. J. ARMSTRONG, seconded by Mr. ROBINSON, it was agreed that the socety be represented at the Blackpool Conference, on the 26th of September. Mr. Armstrong, the president, and Mr. Thompson were elected honorary delegates.

Mr. T. D. Connochie, of Galashields, was elected a member of the society on the motion of Mr. ROBINSON, seconded by Mr. J. ARMSTRONG.

Mr. ARMSTRONG nominated Mr. William Scott, Penrith, for membership.

The Hewson Appeal Fund.

Mr. THOMPSON said he had with him the letters relating to this fund.

They included letters from professional gentlemen who were asked for their account for attending the Carlisle Court and giving evidence in favour of Mr. Hewson.

Professors Williams, McCall, and Dewar, and Messrs. Clarke, Coupar Angus; Olver, Tamworth; Cunningham, Slateford; Rutherford, Edinburgh; all declined to accept any remuneration. Mr. Clarke wrote: "Please don't think I can accept your generous offer. Poor Hewson has paid enough in mental worry and anxiety. If necessity required I would not scruple to do a hundred times more." That letter represented the tone of them all. He submitted the balance-sheet, which had been audited by Messrs. Lindsay (president) and Mr. John Armstrong. It showed that £59 15s. 6d. had been subscribed, with 1s. 3d. bank interest, making a total of £59 16s. 9d.; the total costs were £57 4s. 9d., all of which had been paid up, leaving a balance of £2 12s., which was being returned to the National Veterinary Benevolent and Mutual Defence Society, which contributed £10 10s. to the fund.

The committee, on behalf of Mr. Hewson, thanked the donors, not only for their subscriptions, but for the kind expressions contained in their letters, and they also thanked the professional gentlemen who so willingly attended the court and gave evidence in behalf of Mr. Hewson free of charge.

Mr. ROBINSON moved a vote of thanks to all who had come forward and assisted, not only Mr. Hewson, but the profession as well. They rendered good service.

Mr. ARMSTRONG seconded the motion, and remarked that the R.S.P.C.A. had acted in a most uncalled-for manner. The motion was agreed to.

Mr. THOMPSON read a letter from Surgeon-Major Poole, Norwood, which he had received in reply to a letter he (Mr. Thompson) had sent to the *Veterinary Record*, in which he questioned whether Mr. Colam, the society's advocate, was in his rights to go into another circuit, and if he was paid the extra fees by the society that was required when pleading in a circuit outside his own. The letter was as follows, a copy of which had been sent to the *Daily Graphic*:—

SIR,—A recent prosecution of a veterinary surgeon by the Royal Society for the Pervention of Cruelty to Animals bears on the face of it a very important issue, as it is practically an attack upon a profession which is second to none in its considerate treatment of animals. The facts of the case are that a veterinary surgeon sanctioned the removal of a cow from a cow-byre to a slaughter-house while it was in a parturient condition, and, in so doing, he was considered by the Royal Society to have been guilty of cruelty. He was accordingly prosecuted, but, in the appeal from the magistrate's decision which was made to the quarter sessions, evidence was given by veterinary surgeons of long experience to the effect that the cow had suffered no pain and therefore there was no wilful cruelty. It is at once asked who was the best judge as to the manner in which an animal should be treated, an able and humane veterinary surgeon or an imperfectly instructed inspector. Had the cow been slaughtered in the byre, mischief would certainly have befallen other cows in the same condition. But the real question at issue is, ought the Royal Society to interfere in respect of the manner in which an animal is treated by a fully-qualified veterinary surgeon?

I venture to submit that cruelty is best prevented by principles of kindness being first inculcated, and that the Royal Society should welcome with open arms the Church Society for the Promotion of Kindness to Animals, the Birds' Protection Society, and similar associations, while it should prosecute only where there is proof of deliberate and wilful cruelty.—I am, etc.,

NORWOOD, GEO. K. POOLE, M.D., *Surgeon-Major.*
June 5th, 1899.

Mr. Thompson added, with regard to the appeal fund, that he was a little disappointed with the few responders. He would like to have seen more subscribers of 5s. each; at the same time he heartily thanked the generous donors to the fund. If the appeal had been lost the expenses would have been over £200.

Mr. ARMSTONG said he considered that the profession had spoken out their opinion by subscribing more than was required.

Mr. POTTIE said the society had displayed a great deal of sympathy in the case. They had come forward to defend a member, and in defending him they defended the whole profession. If the profession had thought that the case was in a bad state, and likely to be lost, no doubt a greater number of the members would have come forward to assist him. The Border Counties Society deserved very great credit for the manner in which they had taken this matter up.

Discussion on Mr. Pottie's Paper.

Mr. ROBINSON opened the adjourned discussion on Mr. Pottie's paper and said:—

Mr. Chairman and Gentlemen,—I was more than surprised when I got the letter of our secretary, Mr. Thompson, asking me to open a discussion on the paper of Mr. Pottie, read before the Border Counties Veterinary Medical Society on April 7th, 1899.

One of the elders of the society would doubtless have dealt more ably with the subject. The weight of extensive professional experience would probably have added interest to debate. But we shall doubtless hear from them during the meeting.

Title.—I have read and studied the paper of Mr. Pottie, and must confess disappointment from the title.

I looked forward to reading some valuable and practical statements of the disease, but these he has avoided giving, and, under the circumstances, I am at a loss to know how he gets the title for his paper: without these "facts" we are asked to consider that which has not been laid before us.

I support the contention of the essayist, when he insists that a great many who have written and spoken on the subject have known but little of the true nature of the disease on which they wrote and spoke.

Mr. Pottie is an antagonist of the bacillus theory. In taking up this position he sets himself in opposition to most of the members of the medical and veterinary professions.

In my humble opinion, unless you get the bacillus you will not have the disease (cause and effect are at least demonstrable here). According to most writers, "tuberculosis" is a specific, contagious, infectious, infective disease, due to the presence of a well-known bacillus discovered by Koch.

If Mr. Pottie had read his paper previous to the discovery of this bacillus it might have had weight with the profession, but in the present state of the knowledge of this disease, I venture to think that very few will agree with Mr. Pottie's "Facts not Fiction" regarding bovine tuberculosis.

His paper is written for men of the seventies and not for those who have to keep time with scientific progress, and on whom the responsibility of the new century will rest, so far as maintaining the character of the profession for progress is concerned.

Nor is it enough that the members of our profession "bow to the bush they get the beal off" in the present. We must pay the price of pioneers; we must brave the prejudice of those who cry out against anything new; we must not play "dog in the manger"; we must press forward on the voyage of discovery; we must make research a duty; we must not yield to jog on in the old groove and think that what suited the grandfathers of the present generation will suit their grandchildren.

I know there is a temptation to fall in with the ways of the elders; we are not so likely to shock the unscientific.

But as Galileo said of the world when prejudice said, "We do not believe in your theory," "It moves," so must we believe, and dare to say of veterinary art, "It moves," and its movement is to larger knowledge and more intimate

acquaintance with the bacilli, that are a menace to both animal and human life.

Percentage of Cattle affected.—I do not think that the disease has been over-estimated when we say that 30 to 40 per cent. of the dairy cattle in this country are affected with tuberculosis. I do not mean to imply for one moment that this percentage of cattle are clinically tuberculous, but as demonstrated by the tuberculin test.

The essayist put the percentage of tuberculous cattle in Renfrewshire at 10 per cent.

Gentlemen, I am sorry for the farmers of Renfrewshire if 10 per cent. of their dairy cattle are clinically affected with tuberculosis. I am sure if the tuberculin test were applied at least 60 or 70 per cent. would react if 10 per cent. are clinically affected.

It is no argument that the insurance society paid at 2½ per cent., as no doubt the farmers seldom allow a tuberculous cow to die, but sell her as she is to the low-class butcher who deals in such meat.

I should like Mr. Pottie to tell us if he has any information as to the number of the insured cattle which, after being fattened and sold to the butcher, and after being slaughtered, were condemned as tuberculous and unfit for human food.

I should like to know the reasons why the farmers of Renfrewshire are so opposed to the tuberculin test. Mr. Pottie says they do not believe in Professor Bang's theory.

Unbelief stood out against the discovery of Galileo, and Columbus had his plans thwarted for years by the prejudice and bigotry of the unscientific. May it not be true that the farmers of Renfrewshire are pursuing an equally fatuous policy as were the clericals and Spaniards who stood in opposition to the great geographer and greater astronomer of the past, "because they do not believe in Professor Bang's theory."

The tuberculin test is not a matter of rule of thumb. It is a scientific and reliable method of demonstrating the presence of tuberculosis. Prejudice may shake its head or hold up its hands, but the farmers of the future must be men of progressive spirit and temper if they are to hold their own against the more highly-cultured and progressive agriculturist of our colonies and the continent.

Are Human and Bovine Tuberculosis the same Disease?—I do not hesitate to say, in answer to this question, that human and bovine tuberculosis are produced by the same organism.

The chief difference is that in the human subject there is a greater tendency for the nodules to form "vomicæ" or cavities, which rupture or discharge their contents into the bronchial tube, and on this account the expectorations of the human subject are richer in bacilli than those of the bovine species.

Mr. Pottie, on pages 10—13, argues in a circle, and substitutes ridicule of a rev. canon for arguments against the facts on which Mr. Rawnsley based his paper.

Why it should be a dangerous proceeding to trust a specialist passes my wit to explain.

He comes dangerously near arguing against the necessity for a veterinary profession to say—"Don't trust specialists."

The essayist's citation of the phrase, "Cattle after their kind," is on the old rule of thumb and crude interpretation of 50 years ago, and no one takes it in the sense of our grandfathers.

Is Tuberculosis Hereditary?—Mr. Pottie does not make it at all clear whether he believes in hereditary tuberculosis or not. The weakest pages of his pamphlet are those dealing with this topic. What argument there is is in a

circle, and ends where it began. This is no syllogism, with its clear and well-defined steps, by which to climb out of the bog of generalities and common place. The deduction on page 19, from the three cases cited, is fatalism of the most fatalistic and dangerous character. Let anyone read the last 10 lines on page 19, and how is it possible to draw any other conclusion than that there is no need for professional men? What is cannot be otherwise: there is the end of it. Mr. Pottie gives us what he calls a typical illustration of heredity of tuberculosis. I should like him to tell us the ages of the three calves belonging to Mr. Gibb. The bull in this instance gets the blame of transmitting the disease.

From this finding I entirely disagree.

If the disease had been transmitted by the sire, how is it that more of his progeny did not become affected? But as congenital cases of tuberculosis are very rare, my humble opinion is that when it does occur it is due to infection from the dam, not the sire.

Tuberculosis has been clearly proved by experiment to be a contagious disease easily transmitted by inoculation from one animal to another, and of this every man can doubtless supply his own illustrations, which are infinitely more valuable than the partially stated illustrations in Mr. Pottie's paper.

Mr. Pottie says that rabies is not a contagious disease (p. 20). Some years ago it was considered as such, but after the researches of Pasteur and other Continental professors, it has been accepted without doubt that rabies is of a contagious nature.

The illustrations given on pp. 21, 22—22, and 23 go to show that Mr. Pottie made the facts to suit his theory.

He objects to theorists, but all the while he sticks to the theory of those he terms, on page 22, "the older professional men." He refuses the evidence of all on the other side. Everything he does not believe is fiction, "falsehoods," and false "imaginations."

There are two most pregnant lines on page 25.

Instead, then, of indulging in theoretical notions, we cannot afford to be committing error with regard to this disease or any other.

We would respectfully say to our older brother: "Physician, heal thyself."

If he were to apply the axiom he lays down he would be in the van of the profession.

Milk.—We are well aware there is a danger in the consumption of milk from animals suffering from tuberculosis of the udder. In many cases superficial examination of the udder fails to detect symptoms of tuberculosis, and yet the milk may contain bacilli due to disease of the deep-seated glands.

There is no direct means of ascertaining whether the disease is transmitted to man through drinking milk containing the bacilli. Some bodies possess a resisting power to the disease. This may be due to phagocytosis.

The greatest danger is to infants, whose diet mainly consists of milk, and, through some dietetic cause, irritation of the bowels may occur. The bowels when in this condition afford a suitable medium for the development of the bacilli.

But inoculation proves, without doubt, that the disease can be transmitted to other animals, and the symptoms produced are identical with those when a pure culture of the bacilli is used, instead of milk containing the bacilli. On microscopical examination, the bacilli are found to be identical in both cases.

Pages 21 and 28 of the pamphlet are very ordinary, commonplace jokes, and of no scientific value. I do not think they would inspire a cartoonist to do anything very great.

I am surprised at the disrespectful way in which Mr. Pottie refers to Professors Bang and Nocard as being "heroes." From my personal acquaintance with Professor Nocard, under whom I studied for six months at Alfort, he is

not an agitator, but one of the broadest-minded men it has been my privilege to meet.

He does not jump at conclusions, but speaks from facts carefully collated, the result of long and exhaustive experiments and examinations.

Gentlemen, the vivisection laws are the stumbling block to the study of contagious diseases in this country, and had our professors at home the same freedom as those on the Continent we would not have needed to look so much to Continental professors for information on these diseases.

Again, the Continental governments spare no expense in scientific research. What we are suffering from all round in this country is parsimony on putting brains into folk and prodigality in blowing them out.

Before closing I should like to say that I am sure there would not be such a diversity of opinion regarding tuberculosis if more veterinary surgeons would study the disease from a scientific point of view, and become more familiar with the bacilli through examination with the microscope.

(*To be continued.*)

NATIONAL VETERINARY ASSOCIATION.

THIS association held its annual meeting at Plymouth on August 2nd and 3rd. Mr. W. H. Bloye, F.R.C.V.S., the president of the year, presided, and among the members attending the conference were the following :—

Messrs. G. Arnall, Bodmin; J. Bell, Carlisle; A. H. Berry, Sheffield; O. G. Barrow, Dorchester; A. L. Butters, London; J. Buscomb, Stroud; J. F. Collings, Exeter; J. H. Carter, Burnley; F. P. Collings, Plymouth; D. G. Davies, Swansea; J. Dunstan, St. Mellion; G. H. Elder, Taunton; R. Ferris, Totnes; A. B. Forsyth, Cannock; W. Grasby, Daventry; J. Greig, Belfast; E. R. Harding, Salisbury; F. Harvey, St. Columb; W. L. Harrison, London; Professor Hobday, London; F. J. Healey, Middleton, County Cork; J. T. King, Bournemouth; G. E. King, Abingdon; A. I. McCallum, Edinburgh; Professor J. McFadyean, R.V.C., London; Jas. McGavin, Montgomery; Professor Macqueen, R.V.C., London; J. W. Martin, Enniskillen; A. Marston, Winforton; A. Marshall, Plymouth; A. W. Mason, Leeds; A. E. Mettam, Edinburgh; R. Miller, Clitheroe; W. J. Mulvey, London; W. B. Nelder, Exeter; A. H. Oliver, Devonport; T. Olver, Truro; A. Olver, Rugby; C. Parsons, Launceston; R. S. Pethick, Tiverton; R. E. Penhale, Torrington; J. Pollock, Norwich; T. S. Price, London; W. Ridgman, Liskeard; W. Roach, Exeter; F. G. Samson, Mitcham; W. Shipley, jun., Yarmouth; W. M. Scott, Bridgwater; Major F. Smith, Woolwich; C. Steel, Dublin; T. W. Whitney, Shepton Mallet; Professor W. Williams, Edinburgh; F. W. Wragg, London.

Visitors.—Mr. H. Lukes, Springfield, Massachusetts, U.S.A.; Dr. Willis, Horrabridge; Dr. Christopher Childs, London; Mr. James, Honiton; Dr. Bushnell, Dr. Brenton, Dr. Woollcombe, Dr. R. Burke, Dr. Cash Reed, Dr. Rosa Bale, Alderman W. Law, and Mr. T. Pitts, Plymouth.

The MAYOR gave the members a very hearty welcome to Plymouth. He had had the opportunity of welcoming several institutions during the last month or so, but to none did he give a heartier welcome than to that association. It was well known to many of them that he was rather a "horsey" man himself; and, therefore, he appreciated the visit of the association all the more. He believed the members of the associations that had preceded them had thoroughly enjoyed themselves, and had gone away well pleased with their entertainment; and he hoped members of that association would have a similar experience. There were few places so well situated to enable visitors to enjoy themselves. They had one of the finest seaports in England—he

might almost say in Europe—and there were opportunities for plenty of pleasures, among the number being hunting. In his opinion no better hunters were to be found than those bred in Devon and Cornwall.

The PRESIDENT, in moving a vote of thanks to the Mayor, remarked that Alderman Pethick appreciated the points of a good horse, and, therefore, was all the more grateful to the association.

The motion was seconded by Mr. G. H. ELDER, and carried by acclamation.

The business of the session was then proceeded with. The statement of accounts showed a credit balance of £131.

On the recommendation of the council, Dublin was selected for next year's meeting. Mr. Matthew Hedley (Dublin Castle) was the only member nominated as president, and his election was also recommended by the council. A letter was read from Mr. M. J. Cleary, hon. secretary of the Irish Central Veterinary Association, "protesting in the strongest manner against the action of a section of the members of the National Veterinary Association in Ireland in going behind the backs of our two veterinary associations and selecting Mr. Hedley to represent the profession in Ireland, as against Mr. C. Allen"; and also protesting against the manner in which the Joint Committee had been selected.

Mr. W. HUNTING (secretary), in reply to a member, said there were two members of their association at the meeting at which the resolution of protest was passed, and the united meeting was six members. He had that morning received from Mr. Cleary a telegram, which said: "I am of opinion that a meeting of the National in Ireland, under Mr. Hedley's presidency, would be a failure." That spoke for itself.—Mr. Hedley was unanimously elected.

The following were elected on the council:—Messrs. W. Byrne, E. C. Winter, J. A. Thompson, J. J. Ross, And. Watson, W. Pallin, F. Kerr, J. McKenny, J. V. Daly, O. D. Coll, F. C. Mason, and E. J. Howard.

Mr. A. W. Mason (Leeds), last year's president, was elected a life vice-president. Mr. F. W. Wragg was re-elected treasurer; and Mr. W. Hunting was re-elected secretary.

The PRESIDENT, in the course of his opening address, referred to numerous points affecting the status of the profession. He insisted that the present relations between the veterinary and the medical professions might become more intimate, that they might work hand in hand, and that they might be accorded a considerably larger share than heretofore in protecting the public health. His plea was for the appointment and employment by all local authorities of qualified veterinary surgeons as veterinary officers of health, to whom should be entrusted the inspection, when necessary, of all animals under the various Diseases of Animals Act; the inspection of all animals intended for food prior to slaughter; the inspection of meat, cow-sheds dairies, and milk-shops; and the application of test inoculations, when such were deemed necessary or advisable by the authority. The prior-to-slaughter inspection of animals intended for food could only be properly carried out after the abolition of private slaughter-houses, the necessity for which had been insisted on by sanitarians for years. But paramount among the duties of a veterinary officer of health he would place the inspection of meat, and for this veterinary surgeons underwent a special and prolonged training. They had it on the authority of a Commission that plumbers, carpenters, printers, bricklayers, and tram conductors constituted the majority of present-day inspectors of meat. After urging the importance of bacteriological examinations, and the special fitness of veterinary surgeons for conducting such examinations, as well as the importance of the inspection of dairies, cow-sheds, and milking cattle, the president said the application of such tests as those of tuberculin and mallein could only be effectively carried out by trained veterinary surgeons.

On the motion of Mr. A. E. METTAM (Edinburgh), seconded by Professor McFadyean, the president was heartily thanked for his address.

Tuberculosis in Cattle.

Mr. JOHN DUNSTAN, honorary secretary of the Western Counties Veterinary Association, in a paper on "Tuberculosis and its Prevention in Cattle," said he considered the question the most burning of the day, not only to veterinary surgeons, but to the medical profession, municipal and other authorities, and the public generally. Tuberculosis, its nature, and the means of prevention and cure, were occupying a very great deal of attention amongst agriculturists and stockowners, and rightly so, considering that the greatest authorities stated that about 20 per cent. of the whole bovine stock in Great Britain were subjects of the disease. This must mean a very serious loss to agriculture, and if they could hold out a helping hand to agriculturists it was their place to do so, and not only should they conduct the campaign against tuberculosis for the reason that it was to the advantage of breeders and stockowners to possess a healthy and vigorous stock ; there was another and still stronger reason—the identity of the disease with that dread scourge of humanity, consumption, which, in one or other of its forms, carried to the grave one-eighth of the human race. It was because of the grave dangers accruing to human beings from the use as food of the products of tuberculous animals, meat and milk, and more especially the latter, that they should be so energetic in their attack. It was now established beyond fear of contradiction that human consumption under its several headings, phthisis, tubercular meningitis, tabes mesenterica, etc., and bovine tuberculosis were identical. They were in possession of definite knowledge that tuberculosis, whether it occurred in man, beast, or bird, was precisely one and the same disease, produced by the same specific germ, the tubercle bacillus of Koch. The great point to remember was that it was a contagious disease, and as long as tuberculosis existed in animals so long would there be the risk of infection to man, and *vice versa*. Having testified from the results of his experience as to the value of tuberculin as a diagnostic agent, Mr. Dunstan dealt with the methods of prevention of the disease, remarking that the two greatest natural enemies to the tubercle bacillus were the sun and the active little phagocyte. It was essential that they should see that the conditions under which animals were kept conformed to the laws of hygiene. If it were possible to keep all animals under the very strictest hygienic conditions, and so limit the spread of infection, it would only be a question of a few generations, and the disease would be eradicated. They must separate the diseased from the healthy, and endeavour to remove all sources of infection. In conclusion, he suggested voluntary and legislative methods of dealing with the disease.

Professor MCFADYEAN, in opening the discussion on the paper, said that, when he read Mr. Dunstan's statement that this was the most burning question of the day, it struck him that there was an element of exaggeration about it. He was inclined to think that its economic importance was over-estimated and distinctly exaggerated. Tuberculosis of cattle did not come into the same category as cattle plague or pleuro-pneumonia, because, when these diseases were prevalent, visitations frequently brought individual farmers to the verge of ruin or actual bankruptcy. His information led him to think that the money losses of farmers from tuberculosis were seldom serious, except when there had been some gross neglect of such simple precautions in the way of prevention as the removal of animals obviously ill and dying from the disease. A stockowner might have tuberculosis among his cattle for a number of years, and sustain no loss at all. It was communicable, and in all probability was occasionally communicated to the human subject, but it was necessary for one to guard against dropping into exaggeration. In the past,

exaggeration had been freely indulged in by many who had sought to trace a connection between the human and bovine disease. There never was the slightest justification for the assertion that human phthisis frequently came from the butcher's shop. It was exceedingly doubtful whether any case of pulmonary consumption in man ever originated in bovine tuberculosis; and the evidence justified the opinion that at the most only a small proportion of the other forms of tuberculosis in man came from either meat or milk. Statistics showed that there had actually been a decrease in the number of cases of tabes mesenterica in children over a year old, and that the increase had affected only children under 12 months old. That was not what one would have expected if the consumption of tuberculous milk had been a main cause of consumption in the human subject, because milk entered more largely into the diet of children in the second year than the first. Nobody who had examined the evidence could doubt that products from tuberculous animals must occasionally be the cause of disease of the same name in human beings; but too much importance was attached even still to tuberculous milk as a cause of human tuberculosis. There was, however, evidence to show that there was a distinct menace to human health existing through the prevalence of tuberculosis in cattle. In almost every part of the kingdom milk containing tuberculous bacilli was occasionally sold, and there appeared to be no escape from the conclusion that it must be affecting a certain number of human beings. They knew of no agent that would restrain the tubercle bacilli; their measures had to be directed to prevent the spread of tubercle bacilli from one animal to another. Having regard to the cost, the extermination of tuberculosis within the near future was practically impossible. He would object to Mr. Dunstan's scheme of legislation, because he believed it would be enormously costly, and the results would not be in proportion to the money expended. It would cost £500,000 to test the animals in this country even once; but it would be necessary to test not once but many times. If it was optional it was not a scheme for stamping out. They must educate the public, and show the farmer that it would pay him to attack tuberculosis without waiting for the time when the Government would compel him to stamp it out. Enough was not being done by the Board of Agriculture to deal with tuberculosis in the direction of lessening the risk to which human beings were exposed through the sale of tuberculous milk. If they offered compensation to a man who had a cow dying from tuberculosis they removed almost the only incentive to get rid of the disease.

Professor WILLIAMS contended that the stockowner lost considerably through tuberculosis, although the loss from actual death was very small. He was surprised that Professor McFadyean should have come before them as the special pleader of a cowardly Government. The Government should have done its best to suppress tuberculosis, and it had done nothing; and that supineness had been supported by the president of the Royal Veterinary College. He hoped to see the day when they would deal successfully with tuberculosis. There was no doubt milk was the source of very great danger. Supervision of cattle should be much more strictly carried out, and veterinary surgeons should not play second fiddle to any officer of health or sanitary inspector.

Mr. HUNTING said Professor McFadyean had stated that animals did not die from tuberculosis. They did not die, because they were eaten before they had time to die; and it was not a decent diet. It was not a right thing to feed men on, and if it was a choice between eating tuberculous animals and letting them die, he preferred to let them die. Voluntary effort never yet stamped out disease without State aid.

Mr. DUNSTAN said Professor McFadyean would almost lead them to suppose that tuberculous milk was almost non-infective. He did not believe

they would ever get rid of tuberculosis unless they had Government aid. They must also control the use of tuberculin, know that it came from a reliable source, and prevent its abuse by farmers and others before animals were sold.

In the afternoon Professor MACQUEEN opened a discussion on a paper on "Spavin," by Major Fred Smith, A.V.D. The discussion was followed by a microscopic demonstration by Professor Mettam.

Mayoral Reception.

About 200 delegates, friends, and local residents responded to the invitation of the mayor and mayoress (Alderman J. Pethick and Mrs. Hann) to a reception at the Guildhall in the evening. The host and hostess had made admirable arrangements to ensure an enjoyable entertainment for their guests, and their efforts were ably supplemented by Mr. H. Moreton, Mus. Bac. In an exceptionally attractive programme of music Mr. Moreton's organ solos formed a pleasing feature, and the other performers, all of whom acquitted themselves admirably, were Miss Hilda Spearman, Miss Ethel Spearman, Miss Ada Clase, Mr. T. W. Balhatchet, Mr. J. Skelton, and Mr. C. G. Pike. The room was tastefully furnished and decorated, and in the corridors were tables laden with tempting refreshments, while smokers met in one of the large rooms adjoining the hall. In an interval in the programme, there was a large gathering of delegates in the smoking-room, where the health of the mayor and mayoress was enthusiastically drunk, at the invitation of Professor Macqueen, who bore eloquent testimony to the generous hospitality extended to the association. Mr. John Holland, an Irish delegate, followed with an equally happy speech, in which, on behalf of the Irish members, he invited the mayor to attend the meetings of the association in Dublin next year. Mr. Bloye supported this invitation as president of the association; and, as an additional inducement, remarked that the meetings of the association in 1900 would fit in admirably with the Dublin horse show. The mayor, who was cordially received, responded in a characteristic speech, accepting the invitation, and observing that he was in the best of health and happy to see so many visitors to Plymouth; he wished the members and the National Veterinary Association a long and prosperous life.

The decorations were artistically carried out by Popham and Radford; and Risdon and Sons catered very successfully.

On resuming business the following day, Mr. FRASER, president of the Royal College of Veterinary Surgeons, said he was very pleased to find that several columns were devoted by the local papers to the doings of the association on the previous day, but when he came to look at the discussion in detail and read what the opener of the discussion on tuberculosis said, he was amazed. The opener seemed to have used the acknowledged ability he possessed to minimise the importance of tuberculosis to agriculturists and the consumption of the milk and meat of tuberculous animals. He did not agree with the opinion Professor McFadyean expressed, and he did not think they were the opinions of the veterinary profession. They believed that tuberculosis, especially in the cow, was of the utmost importance, and that the community at large was not only deeply interested, but deeply concerned as to what they were going to do. If the subject were confined to the association they need not trouble themselves, because the impression made would be very slight, but owing to the position which Professor McFadyean occupied, it would be wrong to allow him to use his influence in a direction with which they were not in sympathy. He moved:—

> That this association, being convinced that bovine tuberculosis is a danger to man and a source of enormous loss to owners of cattle, is strongly of opinion that State control of the disease is urgently wanted in the interests of public health and agriculture.

As the result of thirty years' experience, he knew that tuberculosis was the source of very great loss to agriculturists and owners of cattle. They knew as well as they knew the alphabet that the existence of bacilli in the system caused the development of the disease, and that the bacilli were detected in the milk. Was milk which contained the bacilli of tuberculosis a safe article of food? If it was a dangerous article of food, they as a body ought to inform the public that they ought no longer to expose themselves to the danger that the consumption of this milk entailed. The meat was also dangerous, and it was their duty as men particularly trained, and as special experts in this matter, to inform the public, and, as far as their influence would go, to protect them from the dangers of its consumption.

Mr. A. W. MASON, ex-president of the Royal Veterinary College, seconded the motion.

Professor HOBDAY said that whatever resolution they passed would be a criticism of Professor McFadyean, who was not present to defend himself.

Mr. MARTIN: This is an association meeting.

Mr. MCGAVIN said Professor McFadyean's speech had appeared in the papers, and it was their duty to protect the profession and the public. It was a very important matter. If they were to have legislation on the subject this resolution should be carried.

Mr. HUNTING (secretary) said it was not a personal question; and the resolution had nothing to do with what Professor McFadyean said. The motion was an attempt to obtain the opinion of the meeting.

The motion was carried unanimously.

After luncheon, Mr. MCGAVIN opened an interesting discussion on a paper on "Oophorectomy of Cattle," by Professor Hobday.

At the close of the conference Professor HOBDAY gave a demonstration on "Oophorectomy."

The president was heartily thanked, on the motion of Mr. W. J. MULVEY (London), who spoke of Mr. Bloye's courteous conduct in the chair, and said no meeting of the association had passed off so successfully.

The PRESIDENT briefly replied, and said any praise bestowed upon him must be equally shared by Mr. Bond, the local secretary.

Lieut.-Colonel STELL (Dublin) moved a vote of thanks to the writers of papers, and said the marked attention and the very instructive discussions were the best testimony to the value of the papers. Mr. Dunstan's paper on "Tuberculosis" was a marvel of interest, and was likely to lead to important practical results. To Major Smith, Mr. Harvey, and Professor Hobday and Professor Mettam they were also deeply indebted.

The openers of discussion were also thanked, on the motion of Mr. JONES, and a similar compliment was paid to the Treasurer (Mr. F. W. Wragg) and the Secretary (Mr. W. Hunting), on the proposition of Mr. DAVIES.

On the motion of Mr. GOLLEDGE, the Provisional Committee was heartily thanked, special reference being made to the services of Mr. G. H. Elder (chairman) and Mr. P. G. Bond (local secretary).

The PRESIDENT moved a vote of thanks to the mayor and corporation, the Chamber of Commerce, and the Mercantile Association for the use of the rooms.

Mr. FRASER seconded the motion, and spoke in the highest terms of the hospitality the association had enjoyed.

In the evening the association dinner was held in the Guildhall. The greater part of the orchestra was reserved for ladies, and Mr. H. Morton, Mus. Bac., arranged an excellent musical programme. During dinner an orchestra played enjoyable selections, and between the toasts St. Andrew's Quartette, Miss Lena Ham, Miss Ada Dann sang, and Mr. A. E. Searle, L.R.A.M., and Mr. Ough played. The president (Mr. W. H. Bloye,

F.R.C.V.S.) was supported by the mayor (Aldermon Pethick), the mayor of Devonport (Mr. W. Hornbrook), and the chairman of the Stonehouse District Council (Mr. J. E. Bone), and among those present, in addition to the officers and members of the association, were Alderman Bray, Alderman T. G. Greek Wills, Mr. J. F. Winnicott, Mr. Harry Jones, and Mr. Jas. Paton (borough surveyor).

The loyal toasts having been honoured,—

Mr. W. PENHALE (Barnstaple) gave "The county borough of Plymouth," remarking that they, as sanitarians from all parts of the United Kingdom, were highly satisfied with what they had seen in Plymouth. They had many things to congratulate themselves upon—a good water supply and well-kept streets being among the number. They were largely indebted to the mayor for the success of the meeting, which they thought was beyond that of any previously held. When the Royal College of Surgeons granted an honorary degree he hoped the mayor would be one of the first to receive it. The toast was enthusiastically received with musical honours.

The mayor of Plymouth, responding, said they were rather heavily rated in Plymouth, but they had a quid pro quo in good water, improved sewerage, trams and every other convenience for the public generally. He had been connected with the borough all his life, and was now called the father of the corporation, having been in the council 27 years. He was gratified to find that their visitors were pleased with what Plymouth had been able to do for them; their enjoyment fully repaid him for what he had done. There was no country like England, aud there were very few places like Plymouth. It would take them a year to see all they could shew them.

Professor METTAM, in a happy speech, submitted "The navy, army, and reserve forces," remarking that in Plymouth Guildhall they were standing on holy ground so far as it related to the history of bygone days.

Lieutenant-Colonel STEEL, in responding, said he was proud of the position their profession took in the army. There had been a hint that, perhaps, socially, the members of the profession were not sufficiently acknowledged. With his 34 years' experience, he said such an accusation was unfounded. Theirs was a very happy position. They were welcomed by their brother officers in consequence of their constant association with their sports and pleasures; because veterinary surgeons were born gentlemen; and because they were possessed of plenty of tact. Major COLLINS and Mr. A. W. MASON also replied.

Mr. J. F. WINNICOTT, proposing "The Royal College of Veterinary Surgeons," said that the reputation and influence of the college were known and felt throughout Her Majesty's dominions. It received its charter in 1844, but it had an interesting history extending a little over 100 years. There were now four colleges in the United Kingdom, but only one Board of Examiners, and that commended itself strongly in contrast to the method of the medical profession. It was estimated that since 1869 over £1,000,000 a year had been saved to the country by the State Veterinary Department alone. Recognition by local governing bodies might be improved. The dealing with meat and milk, and other matters affecting the food supply of the people, must be put into the hands of the veterinary surgeon.

Mr. J. FRASER, P.R.C.V.S., heartily received on rising to respond, claimed that the veterinary profession had made very considerable progress during the last 50 years. Anglo-Saxons thought they were in the front rank at present, and their profession had made greater progress during the past half-century than the Anglo-Saxon race as a body. Fifty years ago they were far behind the other professions in the country, and to-day they were up in line and were shoulder to shoulder with those who had made the greatest advance. One proof of their progress was the solidarity of their profession. They were

almost dependent 50 years ago upon the other branch of the medical profession for original research, even for their physiology and anatomy. To-day in their own ranks they had men of the highest standing engaged in original research, and all the work worth calling work was done by members of the veterinary profession. They were in a sense independent of the other branch of medicine. They were grateful for what had been done for them by the other branch of the profession, but he wished to be most emphatic in stating that they were standing that night upon their own legs. They were entirely independent, if friendly, with the other branch. Unfortunately, to-day there was a disposition in some parts of the medical profession to usurp their functions ; they were unjustly claiming to perform duties which belonged to the veterinary surgeon only. The veterinary profession contended that they were the only men who had a right to examine domesticated animals to be used for food, alive or dead. This was of the utmost importance, and he had in his mind the interest and the security of the community, because between the public and danger the veterinary profession was capable of standing and defending them, and no other profession was capable. They intended to contend for their rights, and they would dispute, and, if need be, make a vigorous struggle, and would not be deprived of discharging the functions for which they alone were qualified. They could not have done that 50 years ago ; therefore they had made greater relative progress than the medical profession. Comparing the methods of treatment followed by veterinary practitioners of to-day with the methods of the practitioners of 50 years ago, Mr. Fraser said his surprise was that the patients half a century ago survived at all. A better class of men were entering the profession, but one thing essential to their more rapid progress was that they should take a more prominent part in the public life of their country. They ought to be on the boards of guardians, school boards, and district and city councils, and even higher bodies still. He did not suggest this to advance the veterinary profession, but for the far better and wiser reason that veterinary surgeons were more qualified to render service to the State than any others. He advised them to push themselves to the front in no egotistical spirit, but in a spirit of true patriotism. If they did this, he had no concern at all as to the future of the profession.

Alderman BRAY gave "The National Veterinary Association," and remarked that he had been struck with the great kindness of veterinary surgeons to animals.

The PRESIDENT, enthusiastically received, bore testimony to Alderman Bray's energy and industry as chairman of the Tramways Committee, and to his kindness and thoughtfulness for the animals employed on the local tramways. The Plymouth meeting had brought a larger accession to their numbers than had ever taken place before, more than a hundred members having been elected this year. For the success of the meeting they were especially indebted to Mr. W. Hunting and Mr. P. G. Bond. As a means of furthering the prosperity of the association, they hoped before long to see the affiliation of the provincial associations.

Mr. W. HUNTING proposed, in a witty speech, "The Ladies," for whom Mr. OLVER replied.

Mr. SALISBURY PRICE, in complimentary terms, gave "The Provisional Committee," and Mr. G. H. ELDER and Mr. P. G. BOND having acknowledged the compliment, Principal WILLIAMS submitted "The Visitors," and the MAYOR OF DEVONPORT responded.

The next day was devoted to a river excursion. The visitors were for the day the guests of the Western Counties' Veterinary Medical Association, of which Mr. W. Penhale, F.R.C.V.S., of Barnstaple, is the president, and Mr. Jno. Dunstan, of St. Mellion, the secretary, and the arrangements for the

holiday were perfect. The morning was spent in a pleasant excursion through Cattewater, Plymouth Sound, and Cawsand Bay, on the commodious steamer *Princess Royal.* Shortly after noon those kept in town by business in the morning boarded the steamer, and a trip up the River Tamar was commenced. The day was brilliantly fine, and although the heat was occasionally somewhat oppressive, the outing was thoroughly enjoyed. On the steamer there was a bountiful provision of refreshments, and an abundance of delicious fruit and ices proved especially acceptable.

The party disembarked at Cotehele Quay, and walked to Cotehele House, where, by the kindness of the Earl of Mount Edgcumbe, luncheon was served in a large marquee on the bowling green, Mr. W. Penhale presiding. The loyal toast having been honoured, Mr. W. HUNTING (secretary of the National Veterinary Association) proposed "The Western Counties' Veterinary Medical Association," and paid a warm tribute to west country hospitality. He had visited many places with the National Association, and each year they thought they had reached their zenith, but this year's gathering had surpassed all that had preceded it.

Mr. W. PENHALE, responding, said they felt a great honour was being conferred upon them when they found that the National Veterinary Association was coming to their district. The Western Association at once took steps to make the meeting an agreeable and successful one, and above all they decided that the social side should not be forgotten. It was a sufficient reward to know that the visitors had enjoyed their visit, and that this year's meeting of the National Association had been one of the most successful ever held, if it was not the most successful. With regard to their profession, it was a pleasing sign at the end of the nineteenth century when they found that men who had made a discovery, or worked out a theory which might be used to their own advantage, were willing to meet together and impart that knowledge to others for the welfare of the whole. Their forefathers were supposed only to reveal their discoveries on their dying bed.

Mr. J. FRASER, president of the Royal College of Veterinary Surgeons, said their enjoyment that day had been due to a great extent to the generosity of the Earl of Mount Edgcumbe. He believed that lawn had never before been lent to any society for such a purpose; and this fact demonstrated the interest of his lordship in the welfare of the profession. It was the Earl of Mount Edgcumbe's intention to be present at their banquet on the previous night, but, unfortunately, circumstances would not permit. He hoped steps would be taken to communicate their expressions of gratitude; and he invited the gathering to drink the health of the "Earl of Mount Edgcumbe," coupling with the toast the name of "Mr. Ward."

The toast having been cordially received, Mr. WARD congratulated the association on the progress their profession had made, and undertook to convey to the Earl of Mount Edgcumbe their kind expressions.

Mr. ELDER next gave "The Secretary of the Western Counties Veterinary Medical Association, Mr. J. Dunstan," and the toast was enthusiastically received.

The party next visited the house, in the banquet hall of which Mr. W. Coulter gave a most interesting sketch of the history of the fine old mansion.

After visiting the gardens the party again embarked on the Princess Royal, and had a delightful trip back to Plymouth, the enjoyment of the excursion being considerably enhanced by selections by the Royal Naval Band, under Mr. Binding.

The luncheon was supplied by Messrs. H. Matthews and Sons, and, like the banquet of the previous evening, gave the highest satisfaction to hosts and guests.

THE IRISH CENTRAL VETERINARY ASSOCIATION.

THE third annual meeting was held at the Royal Hotel, Mallow, on Monday evening, July 10th, 1899. In the absence of the president, Mr. D. Fulton, Mullingar, occupied the chair. There were also present—Messrs. J. Healy, Midleton; E. C. Winter, Limerick; T. H. Mulcahy, Clonmel; P. J. Howard, Ennis; C. Rea, Clonmel; and Mr. J. Cleary, Mullingar, hon. secretary. Messrs. A. L. Withers, London, and C. Bell, Clonmel, were also present.

The SECRETARY read the minutes of an Executive Committee meeting which took place on February 15th at the Hemmann Hotel, Dublin, and of the second annual general meeting, which was held in the Grand Central Hotel, Belfast, on April 26th. Both received the sanction of the meeting, and were duly signed.

Messrs. F. C. Mason, Blackrock; T. R. Mulcahy, Clonmel; and S. G. Groome, Veterinary Department, Dublin Castle, were unanimously elected members of the association.

On inquiries from members relative to what progress had been made by the Conjoint Committee of their association and the Veterinary Medical Association of Ireland, formed for the purpose of making such arrangements as might seem necessary to invite the National Veterinary Association to visit Ireland in 1900, Mr. CLEARY explained that he had written to the secretary, Mr. F. Kerr, of the Conjoint Committee, asking him to submit a statement of the proceedings of his committee to this meeting. He received no statement to this effect from Mr. Kerr, even though he (Mr. Cleary) personally called on him some weeks later with a view to inducing him to do so. He, however, received a letter from Mr. M. Hedley, the chairman of the Conjoint Committee, which he read for the meeting, and in connection with it explained the result of a conversation he had with Mr. Hedley.

The SECRETARY expressed his sorrow at not being able to attend the meetings of this committee, but from the conversation he had with Mr. Hedley, it appears that at a meeting which took place on June 20th, Mr. Charles Allen, North Frederick Street, Dublin, was unanimously selected as the Irish nomination for the presidency of the National Veterinary Association for 1900.

At a meeting of the Irish members of the National Veterinary Association, which was held in Leinster House, Dublin, on June 21st, and which was only attended by a small section of the Irish veterinary practitioners who found it convenient to do so, Mr. Hedley, on the proposition of Mr. John Freeman, was chosen as their nomination for the presidency of the National Veterinary Association in 1900.

The meeting was unanimous in expressing its sorrow that a bone of contention should have been thrown into the ranks of our profession in Ireland at a time when unity of action is of paramount importance in acquiring the object in view. It cannot, however, let this matter drop without entering a protest against the influences which have been used to oust Mr. Allen, the nomination of the Irish veterinary practitioners, from the position to which he was elected, and, in doing so, the following resolution, proposed by Mr. E. C. WINTER, and seconded by Mr. J. HEALY, was carried unanimously:—

> That we, the members of the Irish Central Veterinary Association, protest in the strongest manner against the action of a section of the members of the National Veterinary Association in Ireland in going behind the backs of our two veterinary associations and selecting Mr. Hedley to represent the profession in Ireland as against Mr. C. Allen, the nomination of the Irish veterinary profession, for the presidency of the National Veterinary Association in 1900, on the occasion of its proposed visit to us. We also protest against the manner in which the Conjoint Committee has been constructed, to the almost entire exclusion of the provincial veterinary practitioners.

Letters of apology for non-attendance were read from Mr. J. Freeman, president of the association; Mr. J. A. Thompson, Lurgan; Mr. G. Watson, Boyle; Mr. Wm. Dawson, Cavan; and Mr. A. Watson, Dublin.

It was decided to hold the next general meeting in Ballinasloe on Tuesday, 3rd October.

The SECRETARY brought before the meeting a circular he had received from the President of the Congress of Public Health, which will take place this year at Blackpool from Thursday, September 21st, to Tuesday, 26th inclusive. It was decided to leave the matter of appointing delegates to this Congress to the Executive Committee.

Proposition by Mr. W. A. Byrne.

The following proposition standing in the name of Mr. W. A. Byrne, Roscommon, was moved by Mr. HOWARD, and seconded by Mr. HEALY :—

> We, the members of the Irish Central Veterinary Association, beg respectfully to point out to the Veterinary Department of Her Majesty's Most Honourable Privy Council that only duly qualified veterinary surgeons are competent to properly carry out the duties of Inspectors under the Contagious Diseases (Animals) Act. Professional knowledge, and the training and experience which veterinary surgeons alone possess, are necessary to the proper discharge of the duties of this important office. The appointment to such positions of non-professional and unqualified men, who are incapable of diagnosing contagious disease, constitutes a serious danger to the health of the live stock of the country, and, therefore, to the prosperity of the people. It further seriously embarrasses the efforts of veterinary surgeons to repress and extirpate contagious diseases. The implication conveyed by such appointments that any ordinary layman is competent to diagnose and deal with contagious disease constitutes a grave reflection on the ability and training of the veterinary profession in Ireland, while the occupation of such a position by a layman frequently deprives the inhabitants of thinly-populated poor districts of the services of a veterinary surgeon, who can only afford to practise in such places when his scanty income is decently augmented by the salary attached to the position of veterinary inspector.
>
> Under these circumstances we hope we may be considered justified in respectfully submitting to the Veterinary Department that they should insist that veterinary surgeons are in every case to be appointed inspectors under the Contagious Diseases (Animals) Act.

This was carried unanimously, and a copy of the resolution was ordered to be sent to the Clerk of the Privy Council. The second resolution standing in Mr. Byrne's name was read, and received the sanction of the meeting :—

> That we, the members of the Irish Central Veterinary Association, beg respectfully to point out to the Irish County Councils that only properly qualified veterinary surgeons are competent to act as Inspectors under the Contagious Diseases (Animals) Act. Professional knowledge, and the training and experience which veterinary surgeons alone possess, are necessary to the proper discharge of the duties of this important office, while the appointment to such positions of non-professional and unqualified men, who are incapable of recognising contagious disease, constitutes a serious danger to the live-stock of the country, and, therefore, to the prosperity of the people.
>
> We, therefore, respectfully ask that whenever any such appointment is to be made, veterinary surgeons only shall be appointed as inspectors under the Contagious Diseases (Animals) Act.
>
> That our Secretary be instructed to forward a copy of this Resolution to every County Council in Ireland.

The SECRETARY : Gentlemen, the next proposition on the agenda is in my name, and reads thus :—

> That the I.C.V.A. deprecates the practice at present in existence whereby members of the Royal College of Veterinary Surgeons, when seeking appointments as County Council Inspectors under the Contagious Diseases (Animals) Act, have to enter into financial competition with their professional brethren. This society is of opinion that the salaries attached to such offices should be fixed by a central authority, and each salary according to a defined scale of remuneration.

The reasons which prompted me to bring this proposition before you are obvious. Ours is the only profession, so far as I am aware, which belittles itself in allowing its services to be secured on the scale of financial competition by which ordinary articles of commerce are bought and sold. Public positions filled by lawyers, medical doctors, engineers, etc., have attached to them fixed salaries, or scales of remuneration, and when their offices are being filled the merits of the aspirants to them are the chief factors which have to be considered by the donors of them. The principle of financial competition may seem right and proper at the first glance, but its application does not result in that economic saving of public money which on first consideration is apparent. If the Lord Chancellorship was put up for public competition you would probably have innumerable lawyers tendering for the position who would undertake the duties of that office for as many pounds per annum as its present occupier has hundreds, but it is doubtful if the granting of it to the lowest tender would mean a saving to the State, while the cutting of each other out by this system of competition would lower the status of the legal profession. It is not human that any man will of his own free will render a greater value in services than he receives for it in money, and if the just salary attached to a situation is £100, the man who takes that situation at £25 does so not with the intention of rendering £100 worth of labour in return for a quarter of that sum, but to pocket the salary attached to the situation, and do as little as ever he can in return for it. To me at least, gentlemen, this system of financial competition is a bad one both from a professional and general standpoint.

Most of the members present quoted instances bearing on this subject which were a great reflection on the veterinary profession.

The resolution was seconded by Mr. C. REA, and passed unanimously,

LAMINITIS.

BY MR. FULTON.

Gentlemen, I was asked at the eleventh hour to read a paper at the meeting, and as the time was so very short I could not get up a decent-sized paper. Now, gentlemen, I do not come before you as a prophet or the son of a prophet, but simply, in a few words, to describe to you the opinion I hold regarding the disease commonly called laminitis.

The difference between my opinion and that generally received is that the one ascribes it to acute inflammatory action affecting primarily, if not solely, the laminal tissues, whereas I consider that the pain emanates from the coffin bone and the dense nervous textures which invest that bone, and that the laminal tissues are only secondarily affected—they are simply implicated or involved in the general suffering and that the affection partakes much more of and would appear in many cases to be referable to hereditary causes of a rheumatic type of a protracted nature than to actual inflammation, and that the disease lacks several essential particulars or conditions which are ever present in acute inflammation.

I base my opinions upon two points mainly. The first is that it is contrary to all experience that intense inflammatory action can be developed instantaneously, as laminitis can be and often is. In inflammation proper there must exist certain phenomena. You may search throughout all human and veterinary records and you will search in vain for a single example of true inflammation being fully developed instantaneously. Spasm sometimes attacks with intensity, but always suddenly; inflammation never. Multitudes of examples might be adduced as illustrations of this position, therefore to call this instantaneous pain in the feet inflammation—whether that pain is the result of metastasis, or from whatever cause it may be, and however

intense it may be for the time being—is, I contend, calling it by an incorrect term. Acute founder or fever in the feet is an infinitely more proper term.

The second point from which I draw my inference is that the effects which we know must follow protracted intense inflammation do not attend or follow laminitis. If severe and protracted laminitis be true inflammation, then suppuration, destruction of tissue, gangrene, and decay of laminal tissue must follow as an inevitable and unavoidable consequence. There is no plan of treatment you could adopt that could prevent it. It must unquestionably be attended by the same laws, and be followed by the same results which inseparably belong to inflammation, but which results we never have in laminitis, however intense and protracted the pain may have been.

I am well aware that authors and lecturers teach that spasm can exist only where there is muscular fibre. Of this I am not so very sure, but of one thing I am convinced, that an intense pain may be instantaneously developed, in which inflammation, as at present understood, is not an element, and where muscular fibre does not exist. I look upon what is generally understood by the term laminitis to be an affection of the feet up to this not properly defined, a condition yet to be ascertained. I believe it to affect, primarily, the cellular membrane and nervous fibre which enters into the composition of the bone and its dense coverings; that the affection is dependent upon the feet and the system generally being in a peculiar condition favourable to the disease at the time this attack takes place. A wondrous sympathy is developed by community of tissue: there may be a preponderance of lactic acid in the blood, or some other morbid, irritable state of body may exist, or animal matter in the bone itself, and this may have been going on for some time before the acute attack. An element is then generated or roused in the system—call it what you like, calorescence, igneous element—for a moment it poises itself, and then it is irresistibly attached to their tissues. It may be something of the nature of a positive and negative electrical state. A current is transmitted through the electrical wires which creates an incipient tumult or local irritation in the bone, and which is attended with instant and intense suffering. I use the term electrical, it being a definition the nearest in approach to what I mean.

As practical proofs of this nerve force. In 49 cases out of 50 where neurotomy has been performed for chronic lameness, say navicular disease, the operation may be performed with impunity, and, unless some puncture or bruise of the sensitive parts takes place, there is no fear of sloughing of the hoofs; but what is the effect if you operate whilst the foot is under the electrical influence, whether the case be one of old standing or recent laminitis? You will find that the adhesion or bond of union between the sensitive and insensitive laminæ is immediately destroyed after the operation; these laminæ appear to quit, or leave each other, and become detached, as if an electric affinity had been suddenly withdrawn, and in a few days the hoof steps off—yet the sensitive laminæ continue alive and vascular during the process. Further, if you fire or blister horses' feet after unnerving you will have deep sloughing, and a hundred to one but you have sloughing of the hoofs also. I am convinced of the existence of this element in the animal economy, and that it is an important part in the functions of vitality.

But what does practice teach us upon the point? I wish to address you as practical men—what conclusions can we arrive at when we find eminent men say that their success in their cases is attributable to prompt and effectual bloodletting, and that operation being performed over and over again. Others equally eminent and of even longer experience assert that their success is referable to never bleeding at all, even in the worst of cases. Now, gentlemen, we are dealing with one of those questions in which both cannot be right.

Again, we find eminent practitioners strongly advocate the removal, at once, of all weight from off the parts, and placing the laminæ and feet in a state of complete rest. This method is prompted to all appearance by scientific and humane considerations. But we find others equally eminent strongly advocating thin-heeled shoes, and compulsory exertion; and we are assured that both these systems are attended with more or less success. But, again, we are dealing with one of those questions in which both cannot be right.

I ask the members to what do they attribute the cause of throbbing of the plantar arteries in laminitis—is it in consequence of the blood meeting with an obstruction in its transit through the foot? I ask to what do you attribute the extremely small, feeble pulse in influenza? You may answer to the general congestion of the capillary system. Here, again, we are confronted with an incongruity—we are dealing with one of those questions in which both cannot be right. And what a labyrinth we get into if we dare to deviate from the trodden path, and ascertain where the truth lies. The fact is—we may depend upon it—that in many of these cases, as in other diseases, nature has been the grand restorer. She has very frequently had to work the cure single-handed, if not in the very face of difficulties which our limited knowledge have unwittingly placed in her way. I consider it would be a burlesque upon common sense, it would be stultifying of true principles, to admit that the very opposite plans of treatment are producing the same effects. What does everyday experience teach us? It teaches us this lesson, at all events—that we may bleed in severe cases of laminitis to syncope if we choose, and in half an hour after that bleeding the artery is throbbing again as hard as ever. We may bleed again and again, and yet again to exhaustion, at a fearful expense of vitality, but the artery is rebellious and throbs on still. Now, I believe this state of things is not dependent upon congestion or inflammation at all. I do not believe there is a drop more blood sent to the feet in laminitis than there is at any other time. And, further, that the throbbing of the artery is solely and entirely referable to a peculiar action in the artery itself, and it recovers its stimulus from the peculiar electrical condition of the part.

I have often met with cases of lameness in which there is great pain and considerable swelling of the limb, and, to all appearance, nothing to account for it, and it often gives considerable trouble in the treatment of them. Such cases, in my opinion, are nothing more or less than the same disease affecting the white, fibrous tissue behind the fetlocks.

Professor Barlow, who was one of the brightest ornaments in the profession in his day, considered it community of disease through community of tissue.

Discussion.

Mr. WINTER did not quite agree with the deprecatory remarks with which the essayist introduced his paper, for considering the limited time at the writer's disposal the paper was an excellent one. He had propounded some new and startling theories. With regard to his observations concerning blood-letting, he did not believe it was any use in laminitis. There were very few cases in which he would bleed, and those were in connection with inflammation of the lungs, and at an early stage. He believed that laminitis was largely due to an impure condition of the blood—what that impurity might be he did not know. It was merely an accident the disease pitching in the feet. It might be inflammation of the lungs to-day, inflammation of the bowels to-morrow, and inflammation of some other part the day after, and he had seen the disease threaten different parts all in a short space of time.

Mr. HOWARD: Why does it pitch in the feet?

Mr. WINTER: I don't know, unless it is that they are the more dependent

parts and get more of the impurities that way. I notice the essayist has not given us his ideas as to treatment.

Mr. FULTON: I did not because it is very simple.

Mr. WINTER: I would like to have your opinion on treatment, for it is a disease about which many difierent views are held. One veterinary surgeon goes in for forced exercise, another for rest and poulticing; one used cold applications and another hot; one recommended a dose of calomel and another said don't give physic of any sort.

Mr. FULTON: My treatment is simple. I give a dose of physic and remove the shoes, but don't touch the sole. I place the foot in a poultice with some soft padding under it, and if the pain is very great I throw the animal down, where, as a rule, he is very glad to remain. Then I use a preparation of potash with belladonna and tincture of aconite.

Mr. HEALY said he had had some experience of puerperal laminitis. He had seen eight cases of this kind which he believed were due to the retention of the cleansing and difficulty in foaling. Two of those cases occurred nine or 10 days after parturition.

Mr. CLEARY: As your secretary it was my duty to get you an essayist for this occasion. I asked Mr. Coll to prepare a paper, but that gentleman wrote me saying that he was too old for such work, and suggested that I should get some of the young fellows to undertake that task. I acted on his suggestion, and got Mr. Fulton to do the needful. There can be little doubt about the cause of laminitis. Occasionally one meets a case due to a traumatic cause such as over-driving, but as a rule the affection is attributable to a septic state of the blood. He agreed with Mr. Winter when he remarked that this blood poison may exert its pathological action in any part of the animal body other than the feet, and on this account is explained the numerous metastatic phenomena which associate themselves with this disease. I cannot agree with Mr. Fulton's theory, but must congratulate him upon it, on the score of novelty, and his pluck in introducing it, which, if correct, must revolutionise all modern ideas on this subject. I cannot see the inconsistency in the treatment of different eminent practitioners which he refers to, as I can understand an animal allowed perfect rest at the onset of an attack and some days later being compelled to move about. The latter course is adopted, not to relieve the inflammatory action, but to prevent the deposit or exudate between the sensitive and insensitive laminæ from becoming fixed or permanent. The sudden onset of the disease is no proof that a pronounced inflammation has not come about. Pneumonia often makes its appearance quite as suddenly, when it is ushered in by an attack of rigors. I am convinced that the intensity of pain in the foot is due to inflammation of the laminæ, and can understand its sudden appearance when I think of the unyielding structures which surround the affected zone.

Mr. WITHERS observed that in his experience of the disease, work had been recommended in order to prevent adhesions. He mentioned that, having met with an accident in the hunting field, his arm was hurt: it was black and paralysed from the shoulder down. He underwent a course of massage treatment twice daily for a week. He next exercised in a gymnasium, and in the course of three weeks from the accident he was well.

Mr. HOWARD was much obliged to the essayist. He was a believer in forced exercise in the treatment of laminitis. He could not agree with Mr. Fulton that the bone was much involved, and grounded his opinion in this respect on *post-mortem* examinations he had made.

Mr. FULTON: The pedal bone is softened, and if the case is of any lengthened duration a knife can readily be driven into it.

The meeting terminated with a vote of thanks to the chairman.

LINCOLNSHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual summer meeting of the members was held at the Great Northern Hotel, Peterborough, on Tuesday, June 27th, when the following members and gentlemen were present:—Professor J. Penberthy; Messrs. J. W. Gresswell, Peterborough; W. H. Brooks, Leadenham; T. A. Rudkin, Grantham; J. Smith, Huntingdon; T. W. Turner, Sleaford; J. Mackinder, Peterbrough; H. H. Truman, March; R. W. Clarke, Horncastle; A. J. Sellers, Market Deeping; A. Lennox, Crowland; E. C. Russell, Grantham.

The minutes of the last meeting, held at Grantham, were read and confirmed.

Letters and telegrams were read from members who found that they were unable to be present.

A letter was read from the secretary of the Victoria Veterinary Benevolent Fund thanking the association for the liberal subscription sent to the fund.

The SECRETARY reported that he had written (as requested by the last meeting) to some of the members of the association, calling their attention to the backward state of their subscriptions. In one case the letter had been returned through the Dead Letter Office and he had received no answer to the other, so it was decided that both names should be erased from the list of members of the association.

Mr. BROOKS, in a very feeling manner, proposed that a vote of condolence be sent to Mrs. Hardy, regretting the death of Mr. Hardy, whom they had all known so well and esteemed so highly. Mr. Hardy had been one of the promoters of the Lincolnshire association; twice he had been their president, and was ever one of their most active members. He was ever ready to give a helping hand to any member of the profession.

Mr. J. SMITH, Mr. MACKINDER, and the CHAIRMAN bore touching testimony to the loss the association had sustained, and they believed it would be a long time before his place could be filled.

In accordance with a notice on the agenda Mr. RUDKIN moved that rule 4 of the association should be altered calling upon the members to pay their subscriptions at a much earlier date.

Mr. MACKINDER said before Mr. Rudkin's motion was gone into he should like to say that it was his opinion that the whole of the rules wanted revising, and he should like to have a committee appointed to go through them and revise them and submit their work to the next meeting.

It was decided that a committee, consisting of the president, the secretary, Mr. Rudkin, Mr. Mackinder, and Mr. Smith, should undertake the revision, and any member should be at liberty to write to the committee if they had any suggestion to make.

PRESIDENTIAL ADDRESS.

BY MR. GRESSWELL, M.R.C.V.S.

Mr. GRESSWELL said he rose to thank them most sincerely for the compliment of electing him as president for the year, but he doubted his ability to perform its duties with the same efficiency as that of his predecessors. But as far as he was able he would make the year as successful as any that had gone before, and he trusted that every member would do his best to further the interests of the association by attending the meetings and by expressing their views on the various subjects that came under discussion. The association was inaugurated at the Albion Hotel, Lincoln, on January 18th, 1883, when 13 members of the profession were present, but they were growing, and they had now over 50 members. The objects of the Association were: first, the elevation of the social position of the profession; second,

the establishing and maintaining of a good and friendly feeling amongst its members; and third, the reading and discussion of scientific subjects relating to the theory and practice of veterinary medicine and surgery. Neither were they without any benefit as members of the association, for, as one of the oldest members, he could speak feelingly of the pleasure he had enjoyed and the knowledge he had obtained by attending the different meetings. They had kept alive a desire for an increase of knowledge, and had also spread information concerning all new discoveries in science. Their acquaintance with their professional brethren had been cemented, and by their social intercourse and exchange of ideas they had helped to elevate their social and professional position in the world. He did not desire to force his opinions on the members, but if he should happen to differ from any of them they must ever remember that he was open to conviction, and that he was prompted by good motives. During the past few years the profession had made rapid strides in scientific research, particularly that of bacteriology; only a few years ago this was scarcely taught in our colleges, but now, by the aid of mallein, tuberculin, and other allied serums, they were enabled to diagnose with certainty, and to successfully combat two, at least, of the diseases which commit such ravages amongst our horses and cattle. On this point, he thought, the veterinary surgeon must hold his own, and he hoped their council would watch carefully their interests, so that the local veterinary surgeon should be able to use mallein, tuberculin, and carry out tests in his own practice, without the aid of a specialist appointed by the Board of Agriculture. Surely their diploma was a sufficient qualification for the performance of such a test. The administration of the Contagious Diseases (Animals) Act, and the subsequent orders of the Board of Agriculture, were subjects of great interest to the veterinary surgeon. There had been several laws passed during the century for the suppression of animal diseases, and for over 30 years the veterinary surgeon had a recognised position, in accordance first with the Privy Council and afterwards with the Board of Agriculture. There had been a Veterinary Department, but he could not for the life of him see why it had been altered to the Animals Department.

In 1847 Mr. John Gamgee, a V.S., pointed out the certainty of our importing the cattle plague unless some national measures of precaution were adopted throughout the British Isles, and the veterinary profession had been constantly labouring to impress upon the authorities and the public the importance of enactments dealing with contagious and infectious diseases amongst our domestic animals, and this had been consistently done in the face of much influential opposition. And we point out with pardonable pride that in every instance where the advice tendered by the veterinary profession had been acted upon, the results had been most satisfactory. At the time of the rinderpest, although the amateur advisers of the Government were lauded as men of high scientific attainments, it was fully proved that they were the "blind leading the blind," and, after their insane advice had been tried over and over again, it was found that the only advice which was of any value was that given by a veterinary surgeon, Professor Gamgee. If his advice has been taken twelve months earlier to "stamp out" the disease, instead of dallying with it, the nation would have been saved millions of pounds. It took time to change the habits and customs of Governments. but by a diligent and well-directed effort the fitness and the ability of the veterinary surgeon was bound to come to the front. Surely their professional training and general practice must make them authorities, and it was their duty to lead public opinion, and not to follow in its wake. The value of the live stock of Great Britain was enormous; their horses, cattle, sheep, and pigs were the best in the world, and they were sought for to improve the breeds of other nations.

English superiority depended in a large measure upon the maintenance of our live stock at the highest stage of perfection. To the profession the stock-owner was already indebted for valuable assistance, not only in regard to sick animals, but also for the improvement of his healthy stock. The time had arrived when they might claim to assume a more public position and demonstrate to the country that the profession contained many members who were capable of doing good service outside the narrow circle of every-day life.

With regard to the Veterinary Department and the working of the Contagious Diseases (Animals) Act, it was true that the profession had been recognised to some extent, and a lot of good had been done in the stamping-out of rinderpest, foot-and-mouth disease, pleuro-pneumonia, etc., but a great deal yet remained to be done. It was high time that the whole control of the Department should be placed in professional hands and should be carried on by and through them. Surely there were plenty of good and capable men in the profession who might be trusted to carry out the letter and spirit of the law, and which they would do with greater efficiency and economy, and without the employment of so large a number of unprofessional men, such as policemen, retired army and navy officers, and private gentlemen, all of whom got good salaries but lacked professional knowledge in the disease of animals. In witness of this he noticed the unskilful way in which swine fever orders were now being carried out. The restrictions imposed were vexatious, and involved a large expense without any satisfactory results. The remedy for all this was very simple, and it was this, that the Board of Agriculture should reinstate the Veterinary Department and appoint a skilled professor, or one from a large country district, well up in cattle practice, to the head of that Department; then insist on compulsory notification to a V.S.—not to a policeman—and isolation of animals affected with a contagious disease. The veterinary surgeon should then report his opinion to the Board of Agriculture or some local authority, and they could then act through the veterinary surgeon. Again, why should one take so many districts, and another not be allowed a single case?

Another question that required great caution from the Government was tuberculosis. Swine fever had cost the country large sums of money every year, and the speaker was afraid that this and tuberculosis would heavily tax the country for years to come. There was one disease that he considered might be stamped out, and that was glanders. If the Board of Agriculture would leave swine fever and take up glanders, their efforts might be crowned with success. He thought the muzzle had checked the spread of rabies.

Mr. Gresswell continued that the question of the public health was commanding increased attention every year, and so long as meat and milk held so prominent a place as articles of food, we might feel assured that the life and health of animals must be included as objects of importance in any scheme adopted by the authorities for the welfare of the public. The office of meat and dairy inspector should be filled by a veterinary surgeon. He is educated up to the standard, his daily work is among cattle, and he alone is conversant with their diseases. A step has been taken in the right direction with regard to hereditary diseases in entire horses. He was pleased to see that some of the examiners at shows were determined to carry out their duties without fear or favour, and in his opinion no entire horse should be allowed to travel publicly if suffering from any hereditary disease. He considered that the time had come for the profession to come to some understanding with the Society for the Prevention of Cruelty to Animals. During the past few years several of their members had been prosecuted for various forms of so-called cruelty. It seemed to him that the society only made use of them to suit their own ends, but it was necessary now that they should show they would

not be dictated to by faddists. In the matter of docking horses, if the society had issued an order prohibiting anyone except a professional veterinary surgeon from docking them they would have proved that they were a humane body. He maintained that as public opinion required that horses should be docked, and if the profession refused to do it, it would still be performed by horse dealers, grooms, blacksmiths, etc. He did not think that the pain of the operation was beyond the slightest if skilfully performed. Mr. Gresswell thought that the magistrates might be more careful before they imposed fines for alleged cruelty, and instanced cases where he considered the facts had been grossly misrepresented. In conclusion he thanked them for their patient hearing, and cherished the hope that many of the things he had complained of might be speedily rectified.

A hearty vote of thanks to the president for his splendid up-to-date address was carried unanimously.

The Examination of Meat, and the Inspection of Dairies, Milkshops, etc.

BY PROFESSOR PENBERTHY.

Professor PENBERTHY then gave a splendid address on the above interesting subject. He said he knew it was unnecessary for him to adduce any evidence to convince them of the dangers connected with eating certain flesh and drinking certain milk. He was well aware that their daily work must bring to them the conviction that the adequate inspection of these articles of diet was necessary. This very conviction, arising out of their special and privileged knowledge of the subject, rendered it imperative that they, as members of the community, should continue to bring the matter prominently forward on every suitable occasion, and to show it to the public in all the light of scientific knowledge. It was important to bear in mind that no scientific knowledge, however much it might add to the public good, could be applied to that purpose much in advance of public opinion. The British public, before accepting the dictates of science and adopting its measures, required to be convinced of the necessity and the benefit which would accrue therefrom. At the present moment, the professor believed, the public were becoming cognisant of certain facts. There was a more personal realisation of the dangers associated with the indiscriminate consumption of flesh and other animal products. For large communities it had been wisely decided that systematic inspection of meat and dairies should be rigorously carried out. The inspection ought to be general and compulsory. If it was good for dwellers in large towns to be protected from disease communicable from the lower animals, was the danger the less in other parts of the country that the dwellers therein should not receive the same protection?

The effect of efficient meat and dairy inspection would be an improvement of the public health, a high ideal for the action of the State and the individual. The professor had no doubt but that in the main the effect of efficient inspection would be favourable to the stockowner. The health of stock would be improved, and their contagious diseases diminished. It was, however, most important that the inspection should be carried out in a thoroughly efficient manner. The study of the diseases of animals supplying flesh and milk was the life work of the veterinary surgeon, and when the services of such men were available they, and they only, should be called on to determine as to the existence or non-existence of disease in live animals and in those slaughtered for human consumption. Having delivered his opinion on these matters it naturally became the duty of the medical officer of health—whose special duty was the preservation of the public health—to settle whether the product of any animal was fit for the food of man.

To employ an unskilled person, whether he be the policeman or the town crier, for such duties, was to misplace a most important function—to keep alive a danger which undoubtedly menaced the public health, whilst on the score of smaller salary it was most unlikely to prove economical.

The Professor then went on to prove that the V.S. was the only person who was fitted for the office of inspector of meat, dairies, etc. He alone knew what the diseases of animals were, and what effect those diseases would have on the slaughtered meat. In the inspection of cowsheds he failed to see how anybody but a V.S. could be employed for the service, for he was the only one who had any knowledge of the animal health. The V.S. was the only one who could tell what air space was requisite for each animal. He was aware that there was an idea about that every animal should have 800 cubic feet of air space, but the Government did not say any such thing. It had been found necessary to draw up certain model regulations, and 800 cubic feet had been put in, but it was left for the veterinary surgeon to decide in every individual case. With regard to tuberculosis in dairies, this was not the result of close atmosphere, narrow space or dirt, for it was well known that the Queen's dairies had been very seriously affected with this disease, although the cows lived under the most sanitary conditions, had perfectly pure water and food, abundant air space, and every attention. Unsanitary conditions were not responsible for tuberculosis, and this was the reason why authorities should take the greatest care in issuing their dairy inspection orders. The orders ought to be submitted to professional men before they were issued; they should be on thorough scientific lines, and impose as few hardships as possible.

In conclusion, the Professor said he had opened a large subject, which wanted thrashing out, and if the members of the profession would only realise their position, and show to the public that they, by their education, were the only men fitted for the work, they would soon have no longer to see unqualified persons filling positions and drawing salaries which by right belonged to the V.S.

Discussion.

The PRESIDENT was pleased that he had suggested to the professor the subject upon which he had so ably spoken, and he hoped a resolution would be sent from that meeting to their council that special lectures and lessons in the use of the tuberculin and other tests should be given.

Mr. MACKINDER said the Dairy Orders had been brought before his district within the last few weeks, and there did not appear to be any uniformity as to the manner in which the different authorities were going to carry them out. The public hardly knew what to think, and some even supposed that it was intended to shut the cow places up altogether. He did not think that the medical officer was the proper inspector for cowsheds, and he was out of his place when he went into one. With respect to the examination of meat, what did the sanitary inspector know about it? But he would go and seize a quantity, put it into a night-soil cart, and take it away for the medical officer to examine. He considered the authorities should find a man who did understand these things and appoint him to the office. He should be glad if a resolution to that effect were sent to their council.

Mr. SMITH thought that in taking up this question they only wanted someone to lead them, and he would propose—

> That the members of the Lincolnshire Veterinary Medical Association respectfully suggest to the Council of the Royal College of Veterinary Surgeons that, in view of the different local authorities applying to the Local Government Board for powers to control the inspection of meat and the management of dairies and cowsheds, special efforts be made by the council to inquire into the idea of providing means to secure the rights of the profession.

Mr. RUDKIN seconded, and the resolution was carried unanimously.

The SECRETARY read an invitation for delegates from the association to be sent to the Congress of the Royal Institute of Public Health, to be held at Blackpool from the 21st to 26th of September, and it was carried that the president and secretary attend as delegates.

Votes of thanks to the president and to Professor Penberthy brought the meeting to a close.

The members then sat down to an excellent dinner, the usual patriotic and loyal toasts being duly honoured.

E. C. RUSSELL, *Hon. Sec.*

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting was held at the Grand Hotel, Manchester, on June 22nd, when Mr. J. McKinna presided, and about 20 members attended.

Apologies for non-attendance were announced from Professors McFadyean and Williams, and Messrs. J. J. Potter Carter and Alexander Lawson.

The minutes of the last meeting were submitted, and approved upon the proposition of Mr. J. H. CARTER, seconded by Mr. J. ABSON.

The PRESIDENT having drawn the attention of the members to the preferment of Mr. James King to the post of Meat Inspector for London, it was unanimously resolved to convey, through the secretary, the congratulations of the society to him.

Mr. Thomas Hadfield, M.R.C.V.S., was duly elected for membership upon the motion of Mr. WOLSTENHOLME, seconded by Mr. CARTER.

International Congress of Veterinary Surgeons at Baden-Baden.

The SECRETARRY having read the minutes of a special meeting convened to consider this question, it was moved by Mr. WM. WOODS, seconded by the PRESIDENT, and carried unanimously, that the treasurer (Mr. Wolstenholme) and the secretary (Mr. Harry Locke) should represent the society at the congress, and should be allowed the sum of 12 guineas each for their expenses.

Mr. S. LOCKE, referring to the other portion of the minutes, with regard to the election of members to council, said, as he was one of those members, he wished to thank the members of the society for their promised support, which, however, was not needed, because the nominations being only eight and the vacancies only eight all those nominated were re-elected to council. He was very pleased to find that Professor McCall was re-elected, and this opinion would be shared by the majority of practitioners in the United Kingdom.

Mr. WOLSTENHOLME having referred to the death of Mr. Buckley, the oldest member of the association, the PRESIDENT proposed, and Mr. S. LOCKE seconded, that the fact be recorded in the minute book, accompanied by an expression of the society's regret at the untoward event.

The PRESIDENT, before introducing Dr. Delépine, reminded the members of the congress at Blackpool, which was to be held on September 21st and 26th next.

SOME OF THE ECONOMIC ASPECTS OF THE PREVENTION OF TUBERCULOSIS IN CATTLE.

BY SHERIDAN DELÉPINE.
(Procter Professor of Pathology, Owen's College, Manchester.)

I.—Introductory Remarks.

I need hardly apologise for bringing once more before you the question of tuberculosis. The position taken by the Government makes it necessary for thinking and practical men all through the country to express their views.

In an address delivered at Newcastle at the beginning of this year, the President of the Board of Agriculture gave the following arguments to prove that the time had not yet come for the Government to take any action (see *Manchester Guardian*, January 30th, 1899).

1. The data were still too indefinite and wanting in preciseness to justify them in asking Parliament for great votes of public money, or to impose upon stockkeepers compulsory measures, entailing great loss.
2. They were not yet sure that those measures would be effectual.
3. The tuberculin test might be administered so as to render cattle incapable of reaction on a second application of the test, and that might be productive of fraud.
4. People who have studied the question most closely were not agreed as to the conditions under which the test should be applied.
5. The disease was difficult of detection unless one could rely on some such discovery as the tuberculin test.
6. At present too little was known, too much doubted, for Parliament to be justified in imposing upon the country heavy expenditure or wholesale restrictions, which would be strongly resisted in many quarters, and which might not do anything effectual for the extinction of the disease.

II.—General Facts which may be accepted as proved.

On many occasions since 1892 I have repeatedly given you data, which seemed to me to show clearly :—

1. That tuberculosis is extremely prevalent in cattle, and that this fact was recognised by the large majority of authorities.
2. That a large amount of tuberculous milk is supplied by dairies, this being a source of serious danger to public health.
3. That the presence of tuberculous animals in a herd is a source of infection detrimental to the farmer.
4. That tuberculin gives the means of rapid diagnosis, and that diagnosis thus obtained is sufficiently accurate to fulfil all the requirements of practice.

These statements were based on the study of the work of Villemin, Koch, Chauveau, Gerlach, Johne, Bollinger, Bang, Nocard, Arloing, McFadyean, etc., and on my own personal observations. Of late, working in conjunction with Dr. Niven in Manchester, Professor Hope of Liverpool, Mr. Gair Ashton, M.P., Mr. G. R. P. Ward, and Mr. J. Laithwood, of the Cheshire County Council, Mr. King and Mr. Holburn of the City of Manchester, I have greatly extended my own field of observations and have been more and more confirmed in the belief that the above statements can be fully substantiated.

Let me, however, before passing further, point out that my conclusions as to facts are in accordance with those published in the 1895 report of the Royal Commission on Tuberculosis. This I consider as strong evidence in favour of the position I had already taken before the appearance of that report. But whilst I agree as to facts, I think the Royal Commissioners have shown in the 1898 report undue timidity with regard to preventive measures. The doubts which Mr. Long expresses can only be accepted with regard to the nature of the measures to be adopted, and not as affecting the facts indicating the need of such measures.

1. We all agree that at the very least 20 per cent. of our cows are tuberculous.* So far as I can see the only form of disagreement existing among experts with regard to the prevalence of tuberculosis is that many believe the proportion of tuberculous animals to be greater than I have just stated. With

* Mr. Thomas Henry Elliott's (Secretary to the Board of Agriculture) Report of the Royal Commission, 1898. Minutes of Evidence, q. 178, p. 12.

regard to cattle in the counties of Cheshire and Lancashire I have collected much evidence during the past five years, and I can say confidently that the above estimate does not represent the total amount of tuberculosis in our district. From the table in which I have summarised the observations made at Ford Bank, at the Dairy Institute of Worleston, and at the Agricultural School at Holmes Chapel you will see that, according to age, from 20 to 31 per cent. of the milch cows were tuberculous in farms where the disease had been kept in check by careful sanitation (Worleston and Holmes Chapel) and that the proportion had reached from 75 to 100 per cent. in another farm, also well kept, but where the disease had evidently existed for a long time (Ford Bank).

2. We all agree that in its early stages tuberculosis is difficult to detect by clinical examination. Mr. Elliott tells us that skilled veterinarians would not be likely to condemn from mere clinical examination even 10 per cent. of the tuberculous animals in the country,* therefore do not propose to rely on such examination. But we have in tuberculin a reagent which fails very seldom when properly used.

3. There is an overwhelming consensus of opinion regarding the value of tuberculin as a means of diagnosis, and its harmlessness. I cannot do better than state the words of Professor McFadyean, who, as is generally known, has not been too rapidly convinced of the value of tuberculin.

"No person, whether he were a layman or a veterinary surgeon, when summoned to look at an animal suspected of showing symptoms of tuberculosis, could give an opinion that was really of much value, in the great majority of cases, unless he used tuberculin." Professor McFadyean "has the most implicit faith in tuberculin as a test for tuberculosis, when it is used on animals standing in their own premises and undisturbed." (Report of the Royal Commission on Tuberculosis, 1898, minutes q. 1259, p. 62.)

The commissioners endorse these remarks by saying: "We entirely accept these conclusions, and entertain no doubt as to the value of tuberculin, provided the test be applied by a competent veterinary surgeon, and that the tuberculin is of trustworthy quality." (Report of the Royal Commission on Tuberculosis, 1898, p. 4). From a large number of observations which have been carried out either under my direction or within my own sphere of observation, I am able to fully endorse these remarks.

I see in this no basis for the doubts expressed by the Minister of Agriculture, for reliable tuberculin and veterinary advice are both available in this country.

4. With regard to the possibility of rendering tuberculous cattle so tolerant to the action of tuberculin that they cease to react to the test, I think that the fear expressed by Mr. Long is not altogether justified. His statements practically imply—

(*a*) That it is quite easy to render tuberculin useless as a diagnostic agent, by a previous injection of that fluid.

(*b*) That fraudulent use of tuberculin would become generally prevalent if measures were taken against tuberculosis on the basis of the tuberculin test.

(*c*) That the authorities would be incompetent to deal with such an abuse.

With regard to the first point I do not think that a respectable practitioner would willingly lend himself to the practice of injecting tuberculin for the purpose of helping a farmer to deceive a buyer or inspector.

The use of tuberculin by the farmer himself would not be without danger of loss to himself, for a careless and repeated administration of subcutaneous injections might often lead to septic infection. A single fraudulent injection

* Loc. cit. question 175, p. 11.

Summary of Results obtained at Ford Bank, 1898-99, and the Cheshire C.C. Farms, 1899.

	Heifers and Cows.				Bulls or Steers.			
	Total tested.	Negative. —	Positive. +	Percentage reacting.	Total tested.	Negative. —	Positive. +	Percentage reacting.
Group I.								
Animals 5 years and over ..	48—	27—	21—	43·8—	—	—	—	—
Ford Bank old stock	5	0	5	100	—	—	—	—
,, new stock	11	5	6	54·54				
Cheshire C.C.	32	22	10	31·25				
Group II.								
3 years and up to 5 exclusively ..	40—	31—	9—	22·5—	1—	0—	1—	100—
Old stock	4	1	3	75				
Ford Bank new stock	7	7	0	0				
Cheshire C.C.	29	23	6	20·69	1	0	1	100
Group III.								
2 years up to 3 years exclusive ..	13—	9—	4—	30·77—	1—	0—	1—	100—
Ford Bank old stock	3	0	3	100				
,, new stock	6	5	1	16·6				
Cheshire C.C.	4	4	0	0	1	0	1	100
Group IV.								
1 year up to 2 years exclusive ..	6—	6—	0—	0—	5—	3—	2—	40—
Ford Bank old stock	5	5	0	0	4	2	2	50
Cheshire C.C.	1	1	0	0	1	1	0	0
Group V.								
Up to 1 year exclusive	6—	6—	0—	0—				
Ford Bank old stock	6	6	0	0				
Grand total	113	79	34	30	7	3	4	57·14

of tuberculin, to be of any use would have to be made less than a fortnight before the inspection of the animal, aud even in that case the results would not be certain.

Repeated injections do not produce tolerance rapidly, as shown by the experiments which Mr. James Laithwood has made for the Cheshire County Council.

From February 6th to April 27th he tested four times five tuberculous cows with the following results:—

Reference No.	Feb. 6.	March 23.	April 5.	April 27.
29	+	+	+	—
32	+	+	+	—
37	+	+	+	—
41	+	+	+	—
42	+	+	—	—

It will be noticed that none of the cows reacted the fourth time they were tested, and that one of the cows ceased to react at the third injection. But the last three injections were made at intervals of 13 days and 22 days respectively. It would, therefore, be necessary for a farmer to use tuberculin very systematically to obtain a degree of tolerance upon which he could rely to deceive the inspector or the buyer. From the record just given I have excluded a sixth cow, which had given a doubtful reaction the first time and had not reacted afterwards. Mr. Laithwood states that she had exhibited during the various tests an irregular temperature. After death no tuberculous lesions could be found, and the liver contained an enormous number of flukes. This case shows clearly the necessity of a careful attention to the variations of temperature to which each animal is liable before the application of the test.

Regarding the probability of a large number of farmers using the test fraudulently to deceive buyers or inspectors, I believe that this would be greatly influenced by the view which the law might take of such an action. It seems to me that the selling of a cow under such conditions would not be less criminal than the selling of an adulterated article of food or of any article under false pretence. With regard to inspection, surprise visits would probably be the best remedy against fraud, for it would be both costly and inconvenient to the farmer to keep whole herds in a state of tolerance.

5. Experts are also of opinion that by thorough and general measures, tuberculosis could be stamped out just in the same way as pleuro pneumonia has been stamped out. Some of them, however shrink from recommending such a measure on the ground of expenditure. In this I think they are quite right, but it is possible to deal with tuberculosis efficiently without having recourse to methods as radical and wasteful as those which are used in connection with pleuro pneumonia.

III.—Expenditure is the chief ground for administrative inaction.

The only apparently sound argument used by the Government to justify postponement of action, is that the expenditure necessary to eradicate tuberculosis from our cattle would be considerable.

I will grant at once that this is a strong argument, but does it prove that inaction is justifiable?

Have we not evidence to show that if we allow tuberculosis to remain unchecked, we must be content to have a milk supply so contaminated that about one-sixth of all the milk we give to our children contains germs which may at any time begin their work of destruction, and not only shorten but embitter many lives? The results of the examination of 282 samples

of milk, which have been tested in my laboratory during the last three years show that I do not exaggerate this danger.

Is not that enough to justify expenditure, and extraordinary expenditure, even if there was not, as there is in this case, the prospect of ultimate commercial gain? For it cannot be denied that the existence of tuberculosis in a farm is a source of loss.

Expenditure has undoubtedly been a stumbling block whenever an attempt has been made to enforce the immediate slaughter and condemnation of all animals found tuberculous, so that notwithstanding the wealth of this country there is much to be said for the position taken by the Minister of Agriculture.

We have had before us clear examples of countries (*e.g.*, Belgium, Massachusetts) starting with very stringent measures, and which have been obliged to reduce the stringency of those measures on account of cost. We have, however, a not less instructive example in Denmark showing the reverse tendency. Professor Bang initiated in that country, in 1893, measures having for their object to give owners facilities for their fight against tuberculosis, without the Government taking any very onerous part in the fight. Five years after this we find him speaking favourably of far more complete measures.

I take from his address delivered in Paris last summer, and reported in *La Semaine Medicale* for August 3rd, 1898, the following sentences, which I have translated as accurately as possible:—

"After reviewing all that has been attempted in various countries one sees that the ideal prophylactic measures which one should adopt to combat bovine tuberculosis, and to make it disappear radically, are the following:—

"(*a*) To recognise all the animals affected with tuberculosis and to notify them. This is to be followed by an inspection of all the beasts which have been exposed to the contagion.

"(*b*) Destruction of all animals sufficiently diseased to be a source of infection.

"(*c*) Complete isolation of animals slightly affected, these to be slaughtered as soon as the disease tends to progress."

He adds, however, that—

"The carrying into effect of such a programme would present great difficulties."

It will be seen by comparing these desiderata with the measures which I suggested at Keswick, five months before the publication of Professor Bang's statement, that they are in substantial agreement with mine. I, however, suggested some means of dealing with the questions of compensation and inspection, which are not included in Professor Bang's suggestions.

When it is remembered that Professor Bang has since 1893 been the originator of preventive measures, based chiefly on the action of owners, assisted to a very slight extent by the Government, it is very significant that he should suggest more complete measures at the end of his five years' experience.

The question of cost is such an important one that, however much outside my ordinary sphere of work, I have been obliged to study it in order to be able to understand the value of the objections raised by practical men. Realising fully the complexity of the economic aspects of farming, I have confined myself to those points which seemed to me capable of clear proof and do not require an expert knowledge of farming, which I have not.

IV.—Practical Experiments at Ford Bank, Worleston, and Holmes Chapel.

Towards the end of 1897, Mr. Gair Ashton, at my advice, determined to stamp out tuberculosis from the herd which is kept on the estate at Ford Bank, Didsbury. The work was carried out, generally speaking, according to the lines I suggested, and Mr. Ashton placed at my disposal all the information I might wish to have regarding the results.

The Ford Bank experiment is one of considerable practical value owing to the great care and ability with which all the data have been collected by Mr. J. Jones, and the very liberal and public-spirited way in which Mrs. Ashton and Mr. Gair Ashton have conducted the experiment, so as to make it as useful as possible to all interested in the matter.

In May, 1898, the approximate value of the old stock, which consisted chiefly of well-bred Yorkshire shorthorns (not pedigree cattle), was :—

	£
7 milch cows, at £19	133
2 new milch cows, at £22 10s.	45
3 heifers, at £14	42
3 young bullocks, at £8	24
3 heifer calves (six months), at £4	12
3 young calves, at £2	6
21	£262

Thirteen of these gave a positive reaction with tuberculin, and were slaughtered at once, viz., eight cows, three heifers, and two bullocks, which were all found (*post-mortem*) to be tuberculous.

Except in one case, all the viscera had to be condemned ; in addition to this, one whole carcase was condemned on account of generalised tuberculosis, and the half of another was also found unfit for food.

	£	s.	d.
The sum realised for the carcases was	159	4	8
The value of the remaining stock was :—			
1 cow	22	10	0
1 bullock	8	0	0
6 calves	3	0	0
	£192	14	8

	£	s.	d.
The actual loss was therefore	54	5	4
To which must be added the veterinary charges ..	10	0	0
	£64	5	4

There was also a serious loss on dairy produce, due to the immediate slaughter, and which would not have occurred had arrangements been made to slaughter the diseased cows only at such time when they were in a proper condition, and it had been possible to replace them rapidly. (The milk of diseased cows should, of course, always be sterilised before use.)

It will also be evident that if the herd had been submitted to periodical inspection every six months, and animals reacting separated and fattened at once, they could have been gradually replaced without interference with dairy work, and sold to the butcher at a much lower loss, since no animal would have been in such a state of tuberculosis as to necessitate condemnation of anything more than some viscera.

Finally, had the testing been done as part of a general system of inspection, the cost of it would have been considerably reduced.

On all these grounds I think I may fairly state that the actual loss of £64 5s. 4d. is much greater than it should have been.

It will be also noticed that the proportion of milch cows affected was greater than usual, eight out of nine cows being found tuberculous (88 per cent.). This was easily accounted for by infection from cow to cow.

The amount of air allowed for each animal varied from over 600 to 1,000 cubic feet, and the cattle were kept apparently in perfect condition.

The first tuberculin testing was carried out by Mr. Locke, Mr. King, and Mr. Holburn; then all the diseased animals were slaughtered at the Manchester Abattoir, inspected by Mr. King and Mr. Holburn, and portions of organs sent to me for examination. The experiment was therefore carried out with sufficient care and publicity to make the results absolutely reliable.

The next step taken was to replace the diseased stock. The ship pens having been thoroughly cleansed and disinfected, new stock was bought subject to the tuberculin test. That is to say, the cows were kept at Ford Bank for about a fortnight, during which they were tested, and only those not reacting kept. A fee of £3 was paid to the seller as a general consideration for the trouble caused by this arrangement. But I think he found further compensation in the prices he charged for the cattle sold under these special conditions.

As it is probable that considerable care was taken to avoid the supplying of cattle likely to react, the results of the testing of this new stock are of great interest, as they indicate the state of things which would probably prevail under the very best market conditions. These results are shown in the table at p. 76 (Ford Bank new stock), and may be summarised as follows:—

Out of 11 cows, five years of age or more, 6 or 54·54 per cent. reacted; out of 13 cows and three heifers, two to five years old, one, or about 8 per cent., reacted.

Among the 13 young cows and heifers there were six animals, three years old, none of which reacted, but the entire absence of tuberculosis from that group was probably a mere accident, as the other figures in the table clearly indicate.

Most of these animals have now been at Ford Bank a year or more, and have been retested once. The only case in which a positive reaction was obtained subsequently, after an interval of five months, was that of a cow seven years old, which had just calved at the time when tuberculin was injected the first time, so that it is quite possible that the first negative reaction could not be relied upon. Some of the young animals remaining from the old stock have now been tested three times in the course of a year; they have continued to give a negative reaction, and are in splendid condition.

I must now refer to the Cheshire County Council experiments. Through the kindness of Mr. R. P. Ward, the organising secretary, I am able to give you the results so far obtained and bearing on the subject I am now dealing with.

This important experiment was conducted on very much the same lines as the Ford Bank experiments, but about one year later. A general account of the work done up to the beginning of March has already been published (*Manchester Guardian*, March 23rd, 1899, and several other newspapers). I cannot do better than quote verbatim part of the account given in *The Guardian*:—

The herds at the Dairy Institute, Worleston, and at the Agricultural School, Holmes Chapel, were tested with tuberculin, with the following results: In the Worleston herd,

numbering 54, 37 were found to be healthy, 14 reacted to the test, and hence were classed as tuberculous, and 3 were classed as doubtful. In the Holmes Chapel herd of 17, 13 were found to be healthy, 3 tuberculous, and 1 doubtful. Of those classified as doubtful, 1 had just calved, 2 were about to do so, and the other had a high temperature before injection; hence it was not considered that a reliable conclusion could be come to in these cases. In each herd there was a valuable shorthorn pedigree bull, both of which reacted. The next step was to prove the reliability of the test by slaughtering those which had reacted, and having a careful and thorough *post-mortem* examination of the bodies made by reliable men. It was, however, deemed advisable to retain a few of those which were considered tuberculous for further experiments. Accordingly arrangements were made for 10 animals—including the two bulls—to be taken to the abattoirs in this city and there slaughtered, and the bodies examined by Mr. King, chief veterinary inspector for Manchester; Mr. Storrar, chief veterinary inspector for the City and County of Chester; and Mr. Laithwood, chief veterinary inspector for Cheshire County Council. Arrangements were further made with Professor Delépine, of Owen's College, that should any difficulcy arise in detecting tuberculosis in any of the carcases he should be called in to make a microscopic and physiological examination, so that no doubt might remain. Again, in order to test whether or not the milk of the cows that had reacted was tainted with tuberculosis, a sample from each cow giving milk was sent in a special sterilised bottle to Professor Delépine, to be analysed bacteriologically and physiologically. Mr. Laithwood examined the udders of all the cows that had reacted at the Dairy Institute, Worleston, and found only one with an indurated udder, the remainder, so far as could be ascertained by manual manipulation, being entirely free. The slaughter of the animals and the *post-mortem* examination took place in Manchester on the 8th instant, in the presence of three members of the Cheshire County Council and of the organising secretary. Of the eight cows sent, two were in full milk, having but recently calved, and were low in flesh; one had an indurated udder, one was a little over two months off calving, was a heavy milker, and a lean, shelly cow. One cow was fat and ready for sale, and another in very good condition. Hence they represented all classes, and consequently the loss on them may be taken as approximating, if not exceeding, the average of what would ensue by sacrificing animals at once under such conditions.

The veterinary inspectors found every animal more or less affected with tuberculosis, and have since made a detailed report of each. The disease was chiefly found in the glands, lungs, and liver, and in the majority of cases the inspectors certified that the "carcases were otherwise very good." The examination is regarded as strong evidence of the reliability of the test. The examination, of course, was most complete, being carefully done by experienced men, who not only knew what they were looking for, but exactly where to look. All the carcases were declared suitable for human food, and they were placed in the hands of a salesman, who disposed of them at prices varying from £22 1s. 8d. to £4 14s. 1d. (less expenses.) All the cattle had been carefully valued before being sent away, such valuation being their worth to the farmer as milking cattle or dairy stock. The total value of the nine animals was £149 18s. 6d. Their sale produced £97 7s. 0d., showing a total loss of £52 11s. 6d. The main loss was in the cows which had recently calved. Being heavy milkers they were low in flesh. Hence, though high in value as dairy cows, they were of low value for selling as meat. The remaining cows that reacted to the test had been isolated from the rest of the herd, and further experiments will be conducted to ascertain if tuberculosis can be cured. The experiments already carried out show that the disease is not hereditary.

A general consideration of the results obtained at Worleston, Holmes Chapel, and Ford Bank leaves no doubt as to the value of tuberculin as a diagnostic agent, that is to say as far as the positive reactions are concerned. This is a matter of great importance from an administrative point of view, for tuberculin could hardly be employed for administrative purposes if it were found that many non-tuberculous cows gave a reaction similar to that given by tuberculous cows. With regard to the value of the negative reactions, this has not been tested in our experiments, but numerous observations have been made regarding this point by other observers, and the results have also been satisfactory.

It is also evident that the immediate loss caused by indiscriminate slaughter of all tuberculous animals is very considerable. There was a loss of £52 11s. 6d. on the nine tuberculous animals from Worleston; that is a little more than £5 16s. per head. At Ford Bank the loss on the 13

animals slaughtered was £64 5s. 9d., *i.e.*, a little under £5 (veterinary charges included). On the 22 animals from both places the average loss was nearly £5 7s. per head.

The number of cows and other cattle above two years of age in the county of Cheshire alone was, according to the Returns of the Board of Agriculture, 115,193 in 1897. Admitting that about 20 per cent. of these cattle were affected by the disease, this would give, roughly speaking, some 23,000 tuberculous animals, and if all these had been dealt with as they have been at Ford Bank and Worleston, the total immediate loss would not have been less than £123,000. It is not possible to make a similar calculation for the whole of the United Kingdom, for we have evidence which tends to show that the disease is too unequally distributed to allow of this being done, but still it would probably be about 55 times greater, *i.e.*, about £6,765,000. You will notice that in this calculation I have excluded cattle under two years. My reason for doing so is that on an average the slaughter of young tuberculous cattle is not a source of loss. In fact it is not till the calving period has been reached that the losses begin to be serious. The cows which have recently calved, and especially the heavy milkers, have a very poor value as meat compared with their value as dairy stock, so that the loss on these cattle is absolutely and relatively very heavy. I have already pointed out the desirability of not slaughtering milch cows till their milking period is over (communication which I made at the beginning of this year for the Cumberland and Westmoreland Chamber of Agriculture), and the results of the Cheshire County Council experiment have entirely confirmed this view.

V.—Losses caused by the slaughtering of cattle of various ages.

In order to obtain further information on this point I divided all cattle into five groups:—

I. 5 years and over.
II. 3 years up to 5 exclusive.
III. 2 „ „ 3 „
IV. 1 „ „ 2 „
V. Under 1 year.

Then I found for each group the number of tuberculous animals, their estimated value, under ordinary circumstances, as dairy stock, their value as meat after they had been slaughtered on account of tuberculosis and thoroughly inspected at a public abattoir by competent veterinary inspectors.

I hoped in this way to obtain some practical information which might serve as a guide to those wishing to obtain herds free from tuberculosis without unnecessary waste of money. The numbers at my disposal are unfortunately small, but I hope that other investigations conducted on the same lines will place us before long in possession of more complete data.

Owing to the marked differences between the returns from Ford Bank and the other two farms, they may with advantage be summed up separately.

Ford Bank.

	Percentage of cows and heifers tuberculous.	Estimated value of 100 animals before testing.	Loss on 100 such animals after slaughter of tuberculous ones.	Percentage loss on capital
Group I.	100	£1900	£735	38
„ II.	75	2015	622	30·86
„ III.	100	1400	—	—
„ IV.	—	800	—	—
„ V.	—	320	—	—

Worleston and Holmes Chapel.

	Percentage of cows and heifers tuberculous.	Estimated value of 100 animals before testing.	Loss on 100 such animals after slaughter of tuberculous ones.	Percentage loss on capital.
Group I.	31·25	£1515	£189	12·47
„ II.	20·69	1800	240	13·33
„ III.	—	1300	—	—
„ IV.	—	800	—	—

It is evident from these figures that both experiments prove the same thing, viz., that if herds are to be kept from tuberculosis by removing all animals which may become tuberculous this must be done before they have reached their third year. Before that date the slaughter of tuberculous animals does not involve any serious loss to the farmer. At a later period the loss becomes very serious, more especially between the third and fifth year, when the cows have their greatest value as milkers. With regard to bullocks the problem is simpler, but it is equally evident that all tuberculous animals should be slaughtered before they are two or three years of age.

It seems, therefore, evident that if all tuberculous stock over three years were eliminated from our herds, it would be quite easy for the farmer, assisted by competent veterinary surgeons, to keep his stock free from tuberculosis ever after, without any serious expenditure, and with the definite prospect of doing away with the depreciation which tuberculosis at present causes.

The problem which we have to face at present is therefore the rapid

VI.—Removal of the tuberculous animals above three years of age (or perhaps, to give a more natural limit, of all cows which are or have been in calf).

I have already shown that this should not be done by indiscriminate slaughter, which would cause a very considerable and unnecessary loss.

I would, on the contrary, again suggest that, of the reacting cattle, only the cows with tuberculous udders, or the animals showing evidence of wasting, should be slaughtered at once. The others would then be isolated in suitable sheds, which need not be so expensively constructed as those intended for sound dairy cows. Bullocks, and cows not in calf, should be rapidly fattened for the butcher. Cows in calf or in milk should be allowed to calve and yield milk till the period of lactation ceases, or can be made to cease without inconvenience to the animal, which should then be fattened. The calves should be separated from their dam and fed on milk from the tuberculous cows after this milk has been thoroughly sterilised. The milk which could not be employed for that purpose should be utilised for making butter or cheese after the cream has been sterilised by continuous heating at a suitable temperature.

I have not found that cream heated up to 85 deg. C., as recommended by Bang, gave good butter. But I have, I think, succeeded in killing the tubercle bacillus, in cream, at a lower temperature without the butter made with that cream acquiring any unpleasant flavour or showing any alteration of properties. I cannot enter here into these experiments which are not yet complete.

I think by taking these precautions tuberculous cattle over three years of age could be disposed of more profitably than by immediate slaughter, and the loss on dairy produce not be great.

Still the loss would be sufficiently heavy to make it necessary to find some means of helping the farmer. I have previously expressed my views with regard to the administrative methods which seemed to me most desirable (*The Manchester Guardian*, April 1st, 1898, and *The Lancet*, September 17th, 1898). I think the statements I have made to-day justify the position I have taken regarding the need (1) of compensation for a limited period, and (2) of general administrative action. At the same time I have also shown that by voluntary and independent action much may be done, and that by proper management the expense of extirpating tuberculosis may be considerably reduced.

With regard to the special loss caused by tuberculosis of the udder and advanced tuberculosis, rendering the carcase unfit for food, it is not easy to estimate it beforehand.

Of the 27 animals found tuberculous at Ford Bank, Worleston and Holmes Chapel, and slaughtered afterwards, 2 or 7·4 per cent. were in such a bad state that the whole carcase of one and the half of the other had to be condemned. Out of the same number of cows reacting, only one had a tuberculous udder, that is about 3·7 per cent.

Professor McFadyean has kindly given me the following answers to questions which I asked him on these points. "I have personally examined the udders of about 5,000 milch cows and have come to the conclusion that somewhere between 1 and 2 per cent. of them are affected with tuberculosis of the udder. I think that if the regulations suggested by the recent Royal Commission on Tuberculosis were adopted in judging of the fitness of carcases for human food, probably about 5 per cent. of tuberculous animals would have to be condemned."

Professor W. Williams, in answer to similar questions, has kindly informed me that "As near as he could make out 3 per cent. of tuberculous cows have udder disease."

Professor S. Stockman has also given me information regarding the prevalence of tuberculosis in cows slaughtered in Edinburgh, and the frequency of tuberculosis of the udder in tuberculous cows. But as a strong effort is being made there to clear the byres from tuberculous animals, and especially of those with tuberculous udders, the large proportion of the latter which he has observed cannot be relied upon for the purposes of generalisation.

(*To be continued.*)

WESTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

MR. W. PENHALE, of Barnstaple, president, occupied the chair at a meeting held at the Railway Hotel, Taunton, in July, when there were also present Messrs. John Dunstan, St. Mellion, Cornwall (hon. sec.); P. G. Bond, Plymouth; W. Roach, Exeter; T. E. Baker, Crewkerne; G. H. Elder, Taunton; Thomas A. Cade, Bristol; E. W. Bovett, Bridgwater; E. Hayes, Fisher, Wellington; C. Hedsworth Golledge, Sherborne; and Joseph Buck, Taunton.

Mr. J. P. Heath, jun., M.R.C.V.S., of Exeter, was elected a member of the association, and on the motion of Mr. ELDER, seconded by Mr. BOVETT, Mr. Gillam, of Minehead, was nominated for membership.

The CHAIRMAN made a statement as to the final arrangements which had been made for the reception of the National Veterinary Association at Plymouth on August 2nd, 3rd, and 4th next. He said the Western Counties Association was arranging for a steamer trip in Plymouth Sound, and up the river Tamar to Cothele, the Earl of Mount Edgecumbe's Cornish seat, where

the members would be entertained to luncheon by the Western Association. The secretary had chartered the best steamer in the Sound, and it was hoped that the trip would be a very enjoyable one. The naval string band would play on the steamer, and at Cothele the mansions and grounds formed one of the finest show places in the West of England, and all would be open for the inspection of the visitors.

Mr. BOND gave an outline of the proceedings at Plymouth on the three days, and detailed the various festivities which had been arranged.

The CHAIRMAN, in calling upon Mr. W. Roach, of Exeter, to open a discussion on the question of awarding prizes to unsound harness horses at first class shows, said it was proposed to have an informal discussion, but he hoped it would not be less profitable on that account. There were side issues to the question which Mr. Roach would raise, and they would have a favourable opportunity of thrashing the matter out.

Mr. ROACH said this subject was, he might say, almost forced upon him at the recent show of the Bath and West of England Society at Exeter. He was showing a harness horse, and there was a rather close run between this animal and that which was eventually awarded first prize. Sir George Brown was in the ring, and Sir John Shelley, the steward of the ring, was also present. The first prize animal was undoubtedly a roarer, and he (Mr. Roach) remarked to Sir George Brown and Sir John Shelley, "Surely the judges wont give a prize to an animal like that." The animal, however, was awarded the prize, although the general opinion was that he ought not to have had it, because he was manifestly unsound. He went to the secretary's office to lodge a protest against the award, when he was coolly told that they did not sustain any protests against harness horses for unsoundness. This rather took him aback, but he got a promise that the matter should be brought up at the Council meeting next day. He spoke to Sir George Brown, who agreed that it was not right that unsound horses should be awarded prizes. He himself thought the course adopted was very wrong, because the main object of these shows was to improve the breed of horses. (A Member: That's the last thing thought of now.) It was no use to breed from an animal if it were unsound, and it was very hard if a man gave an increased price for an animal because it had taken a first prize, and then for him to find that he had been seriously misled. He would certainly like the opinion of the meeting on the question. They knew that Tattersall's rules said that all horses offered by them must be sound in wind, and the Royal Agricultural Society laid it down that all breeding animals must be sound, but he thought they ought to go further than that. He therefore proposed: That in the opinion of this meeting it is desirable that all unsound animals should be disqualified from taking a prize, excepting in the case of jumping horses." He knew this was rather sweeping, but he thought a man should take steps to see that his animal was sound before he sent it to a show.

Mr. BOND: How would you define unsoundness?

Mr. ROACH: As disease which is hereditary.

Mr. GOLLEDGE remarked that the Hackney Society was very strict in regard to this matter. He thought horses before they were awarded prizes should be certified as being free from all hereditary unsoundness.

Mr. BAKER said he knew that many horses which took prizes were unsound, but in many cases the owner of the second animal did not know it.

The CHAIRMAN said he supposed it was desired that the Bath and West of England Society should adopt a specific rule, so that if a protest on account of unsoundness were lodged and sustained a horse might be disqualified.

Mr. ELDER thought it would be much better if the societies decreed that all horses should be subject to examination before prizes were awarded.

Mr. BOND thought a rule should be made to the effect that an exhibitor should be fined £10 if he exhibited an unsound horse.

Mr. GOLLEDGE approved of this suggestion.

Mr. BOND said he had known unsound horses get a premium of £250. He thought one of the greatest difficulties was that they had so many judges at the various shows. They would never alter this until they had one man judging.

The CHAIRMAN, in this connection, spoke of the common practice of appointing honorary veterinary surgeons at shows. He suggested whether the time was not come when they should cease to do this duty without pay. He did not see why they should not be paid, as well as the secretaries of the shows, and he thought they ought to stand their ground gradually.

Mr. GOLLEDGE said many of them had to subscribe to the shows and then do this work for nothing.

Mr. BOND said nine-tenths of the horses shown now were unsound. The original object of the societies was to get sounder animals at a lower rate, and the general public subscribed with that object in view, but now people got a worse animal and paid more money for it.

The resolution was seconded by Mr. GOLLEDGE, and was finally carried unanimously in the following form: "That in the opinion of this meeting it is desirable that no horse, except jumping horses, should be awarded prizes by horse shows and agricultural societies if they are suffering from unsoundness, and that the societies be advised to adopt the rule as to unsoundness as now enforced by the Royal Agricultural Society.

At the last meeting of the Association a paper on "Actinomycosis" was contributed by Mr. W. Morgan Scott, of Bridgwater, and the same was published in *The Veterinary Record* of March 25th. The discussion on the subject was now resumed.

The CHAIRMAN congratulated Mr. Scott on the ability displayed in his paper. He had evidently seen a great deal of the disease in his neighbourhood, and he showed himself to be a very careful observer. Mr. Scott said he had found the tongue mostly affected, but he (the Chairman) had found the upper and lower jaws most frequently attacked. The nasal membranes and their vicinity were frequently affected in cattle in his neighbourhood. How the disease affected the entire system was, he thought, still an unsolved mystery. Mr. Scott ably described the symptoms and the treatment of the disease, which was formerly regarded as hopeless whereas it was now fully recognised as curable. As to the use as meat of an animal affected by actinomycosis, his opinion was that if the head were thrown away and no other enlargements were found about the body, the rest of the carcase was good for food. As to milk, he considered that if an animal were suffering from actinomycosis, and there was a discharge of pus from the jaw, the milk should be condemned. As regarded the locality of the disease, Mr. Scott gave it as his opinion that it was more prevalent on alluvial ground, but he (the Chairman) had found it equally so in a hilly country.

Mr. BAKER said he had found a calf three weeks old affected by the disease.

Mr. BOND mentioned that a man suffering from it had come under his observation in Surrey.

After a few other observations the discussion closed.

It was agreed, on the proposal of Mr. BOND, seconded by Mr. ELDER, that the next meeting should be held in November at Exeter.

Letters were read from the Royal Institute of Public Health and the Sanitary Institute inviting the Association to send delegates to the forthcoming

congresses at Blackpool and Southampton respectively, but, in view of the Conference of the National Veterinary Association being held at Plymouth, it was decided to make no appointment.

The members afterwards had tea together.

CONTAGIOUS DISEASES ANIMALS ACT, 1864 AND 1899.

SUMMARY OF RETURNS OF OUTBREAKS, for the four weeks ending August 12th, 1899.

ENGLAND AND WALES.

Pleuro-Pneumonia.	Swine Fever.	Glanders (including Farcy).	Rabies.	Anthrax.	Sheep-Scab (for month of July.)
None.	Outbreaks 134 Slaughtered 1,714	Outbreaks 71 Attacked 117	None	Outbreaks 25 Attacked 62	Outbreaks 15

SCOTLAND.

None	None	Outbreaks 5 Attacked 89	None	Outbreaks 4 Attacked 7	Outbreaks 5

IRELAND.

None	Outbreaks 38 Slaughtered 564	Outbreaks 0 Attacked 2	Dogs 9 Other animals 1 Destroyed 6	None	Outbreaks 11

"A DISTINCT MENACE TO HUMAN HEALTH."

The North British Agriculturist *on Professor McFadyean.*

PRINCIPAL MCFADYEAN'S views, or, to be more accurate, Principal McFadyean's statements, respecting tuberculosis and tuberculin are as shifting as are the scenes in a pantomime transformation scene. He found at first that the tuberculin test proved erroneous in 24 out of a total of 75 cases; and, according to the report of the first royal commission on tuberculosis—

Professor McFadyean finds in his own hands that the test substance (tuberculin) has frequently led to erroneous inferences.

But now the learned Principal finds that tuberculin is an all but infallible diagnostic in regard to tuberculosis. In the same way Principal McFadyean has up till lately been most persistent in his demands that the dire disease of tuberculosis should be stamped out on account of the tremendous loss it involved to stockowners, and the terrible loss of human life and health resulting from the ingestion of tuberculous meat and milk. But at the Annual Veterinary Congress, held at Plymouth last week, Principal McFadyean turned up and smilingly assured the veterinary profession and the world that the loss caused to stockowners by tuberculosis was infinitesimal, and the danger of contracting consumption through consuming tuberculous milk was infinitesimal also. True it is that, in the same breath, he declared that the prevalence of tuberculosis among bovine stocks was "a distinct menace to the public health"; but, all the same, he insisted that the danger which lurked in either tuberculous meat or tuberculous milk had been greatly exaggerated. In order to show the peculiarity of the Principal's latest deliverance on the subject, we here quote three consecutive sentences from his Plymouth speech, as follows :—

Nobody who had examined the evidence could doubt that products from tuberculous animals must occasionally be the cause of disease of the same name in human beings; but too much importance was attached even still to tuberculous milk as a cause of human tuberculosis.

There was, however, evidence to show that there was a distinct menace to public health existing through the prevalence of tuberculosis in cattle. In almost every part of the kingdom milk containing tuberculous bacilli was occasionally sold, and there appeared to be no escape from the conclusion that it must be affecting a certain number of human beings.

In our earnest efforts to find out what Principal McFadyean's views really are regarding the dangers of tuberculosis, we came upon the following statements, which do not harmonise well together :—

Principal McFadyean before the Royal Commission on Tuberculosis, Nov. 1896.

I think that all those who consume milk in a raw state, that is, unsteamed or unboiled, are at present exposed to a risk of contracting tuberculosis. . . . If the milk [from a tuberculous udder] were taken undiluted with milk from other cows, it would be a very certain method of infecting the individual. . . . I should not allow any child of mine to consume uncooked milk.

Principal McFadyean at the Veterinary Congress, Plymouth, August, 1899.

It was exceedingly doubtful whether any case of pulmonary consumption in man ever originated in bovine tuberculosis, and the evidence justified the opinion that, at the most, only a small proportion of the other forms of tuberculosis in man came from either meat or milk.

At the memorable meeting of the National Association for the Prevention of Consumption, held at Marlborough House under the presidency of the Prince of Wales in December last, Sir William Broadbent, who is at least as eminent in the medical profession as Principal McFadyean is in the veterinary profession, spoke as follows :—

Another way in which the bacilli are disseminated is in milk. Cows, unfortunately, are very subject to tuberculosis, and sooner or later the bacilli find their way into the milk. Through milk so contaminated, infants and young children become infected with *tabes*

mesenterica, tubercular meningitis, and disease of the bones. The flesh of diseased animals also may contain the bacilli.

Principal McFadyean took part in the same meeting, which was avowedly held under the presidency of the Prince of Wales for the purpose of drawing public attention prominently to the subject; and, in the words of the official report,

Professor McFadyean, Principal of the Royal Veterinary College, directed attention to the risks of contamination from diseased milk and meat.

Now, however, the Principal comes forward to assure us that

It [tuberculosis] was communicable, and, *in all probability, was occasionally communicated to the human subject*, but it was necessary for one to guard against dropping into exaggeration. In the past, exaggeration had been freely indulged in by many who had sought to trace a connection between the human and the bovine disease.

The Principal also informs us that

His information led him to think that the money losses of farmers from tuberculosis were seldom serious, except when there had been gross neglect of such simple precautions in the way of prevention, as the removal of animals obviously ill and dying from the disease.

But if the effect of the disease is to lead to the affected animals getting to be "obviously ill and dying from the disease," how can "the money loss of farmers from tuberculosis" be "seldom serious," when, according to the Principal's evidence before the Royal Commission, at least 25 per cent. of the cows in the country are affected with the disease? Only a few months ago, also, the learned Principal had a noteworthy experience in connection with the royal herd of dairy cows at Windsor, where the animals, no doubt, were kept under the very best of sanitary conditions, and all "simple precautions in the way of prevention" were, no doubt, duly attended to. And yet in the case of these dairy cows in the royal herd no fewer than 36 out of 40 were found to be affected with the disease! Of course, we make no attempt to fathom the motives which inspired this wonderful speech of Principal McFadyean at Plymouth; but it is very significant that his views, or at least his expressions of opinion, should have suddenly come into line with those of the Government, as stated by Mr. Long in the House of Commons the same week, to the effect that the Government had decided that they would not act on the recommendations of the Royal Commission, and would, in fact, do nothing for the eradication of the disease. We are far from expressing any opinion as to the justice of Principal Williams calling his brother Principal "the special pleader of a cowardly Government." At the same time it was well for the honour of the veterinary profession that Principal McFadyean's statements were emphatically repudiated by the Veterinary Congress assembled at Plymouth.

The Western Morning News, *August 3rd, on Professor McFadyean.*

If there is a question upon which the National Veterinary Association might be expected to make a clear and definite pronouncement it is that of the prevention and cure of tuberculosis in cattle. The fact that consumption

is contagious, and that this and other forms of tuberculous diseases may be communicated from animals to human beings has opened up new prospects both of dread and of hope. On the one hand, it has led us to look forward to a time when the ravages of these dread diseases may be stayed, while on the other it brings us face to face with the hitherto little regarded risk of contracting them through our food supply. Diseases which slay one-eighth of the human race and affect one-fifth of the cattle of the country may surely be described as matter of the first importance. In such a connection language cannot be exaggerated, and when a man of the professional standing of Mr. McFadyean bids us be at ease because the money losses of farmers are not serious, and talks of the cost of stamping out tuberculosis as prohibitive, we can only marvel at the facility with which he ignores the more important side of the question. It is only justice to the Professor of the Royal Veterinary College to say that careful perusal of the report of his speech leaves us in doubt as to the precise degree of importance which he attaches to what the President of the Association described as the intercommunicability between animals and men of these diseases. In one sentence Mr. McFadyean says it was exceedingly doubtful whether any case of pulmonary consumption in man ever originated in bovine tuberculosis; and the evidence justified the opinion that at the most only a small proportion of the other forms of tuberculosis in man came from either meat or milk. This might tend to lessen our fears were we not immediately afterwards told that "there was evidence to show that there was a distinct menace to human health existing through the prevalence of tuberculosis in cattle," and that "enough was not being done by the Board of Agriculture to deal with tuberculosis in the direction of lessening the risk to which human beings were exposed through the sale of tuberculous milk." We should like to suggest that before Mr. McFadyean next addresses himself to the subject he should decide upon which side of the fence he intends to climb down. After all, one human life is of more importance than that of many cattle; and if there is "the distinct menace to human health" and "the risk" of which Mr. McFadyean speaks, the fact that the stamping out of the disease would cost the State a lot of money ought not to stand in the way of remedial measures. The country did not count the cost when it was a question of putting in force drastic legislation for the extermination of cattle plague and pleuro-pneumonia. It is surely not going to consider whether we shall have to spend a few thousand pounds more or less when the question is that of the elimination of diseases which affect the people more than the cattle.

SANITARY COMMITTEE, LLANELLY URBAN COUNCIL.

FRIDAY, *July 15th*, 1899.

A LETTER was read from Mr. Samuel Daw offering his services as inspector of cowsheds, and stating that he was also competent to test the water and gas.

Mr. J. GRIFFITHS stated that Mr. Griffith Hopkins, the man suggested for the work, had plenty to do already.

The CHAIRMAN stated that it would be necessary to appoint a qualified man.

Mr. F. VIVIAN said that this was the thin edge of the wedge to create a new office.

The CHAIRMAN said they should have a man competent to examine meat.

Mr. VIVIAN said if the rates went up very much more the poor man would not be able to buy any meat at all.

The CHAIRMAN said the matter was not looked upon as very important. Consumption came directly from milk, and should be looked after.

Mr. F. VIVIAN: It is the general idea that the appointment of an inspector would cost £100 to £150. The matter was backed up by a man who was seeking the position. He had been round to more than one of the members of the committee. If anyone wanted their meat inspected they should buy their meat from a butcher who would guarantee that his cattle had been properly examined.

The CHAIRMAN suggested that they should go to the vote upon the question of appointing a competent man to do the work.

Mr. J. DAVIES said that cow owners would not kill consumptive cows because, when diseased, they gave almost double the usual quantity of milk.

Mr. J. S. TREGONING said that if the disease could be stamped out by the appointment of an inspector, it would be money well spent.

The CHAIRMAN said that he had been told by the medical officer that it was advisable to appoint a veterinary officer.

Mr. F. VIVIAN: Why do not people boil the milk?

Mr. J. GRIFFITHS: I cannot drink boiled milk.

Mr. VIVIAN: I know what you can drink.

The CHAIRMAN said that a qualified man, he understood, could instantly find out when a cow was diseased.

Mr. VIVIAN said that he had been told that worry brought on consumption quicker than anything.

It was decided to defer the matter until the next meeting.

The inspector reported that he was unable to complete his report upon the question of inspecting cowsheds and dairies.—*Cambrian Daily Leader, July 15th*, 1899.

Honorary Secretaries of veterinary medical societies and associations are informed that if they will forward the MSS. of their proceedings before the 18th of the month, the Editor will have much pleasure in returning them proofs within a few days thereafter, so as to enable them to be correctly inserted in the VETERINARY JOURNAL.

Communications, Books, Journals, etc., Received.

Veterinarian; Record; Bulletin of The John Hopkins Hospital; The Journal of Comparative Medicine and Veterinary Archives; The Scottish Medical and Surgical Journal; American Veterinary Review; The Public Health Journal; The Journal of the Jamaica Agricultural Society; Queensland Agricultural Gazette; Petersburg Veterinary Society's Journal; Revista Veterinaria (Vitoria); La Riforma Veterinaria (Naples); Recueil de Médecine Vétérinaire (Alfort); L'Echo Vétérinaire (Liège); Annales de Médecine Vétérinaire (Brussels); Berliner Thierärztliche Wochenschrift (Berlin); Deutsche Thierärtzliche Wochenschrift (Hannover and Karlsruhe); La Clinica Veterinaria (Milan); La Revista Veterinaria (Buenos Aires); Agricultural Journal (Cape Town); Bulletin de la Société des Sciences (Bucarest).